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NINTH ANNUAL REPORT

OF THE

STATE MINE INSPECTORS

OF THE

STATE OF MISSOURI

FOR THE

YEAR ENDING JUNE 30, 1895,

JEFFERSON CITY, MO.:
TRIBUNE PRINTING COMPANY, STATE PRINTERS AND BINDERS.
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REPORT.

The depression experienced the past year in all industries, together with the miners strike which continued well into our fiscal year, will fully account for the decreased production of coal for the year ending June 30, 1895.

The decrease, compared with the output of our mines for the previous years, was 4 2-10%. This decrease, however, is 3 2.10% less than the general average decrease of the country at large.

The coal trade of the State has improved wonderfully in the last six months, but this revival in business was experienced too late in our fiscal year, to add any appreciable amount to the volume of business accounted for in this report.

From a personal canvass of the entire coal producing sections of the State, made since the end of our fiscal year, I found a decided change for the better, embracing not only an increase in productions, but better prices for mining and better prices received from the sale of coal.

All mines of any importance were running to full capacity, and there was a general demand for miners throughout the mining districts.

Prices paid to miners have been increased, and the demand for coal and its price has increased.

The prospects for the ensuing year are most flattering, and unless some unforeseen difficulty arises to disturb the business of the country, this year's product should equal our year of greatest production, and possibly overreach it.

During the year, 34 counties reported coal produced; reports were received from 402 mines; of this number, 177 are shaft openings, 77 are slope openings, 82 are drift openings, and 66 are strip pits.

The power employed, except in strip pits, is distributed as follows: Steam-power, 83; horse-power, 146; and hand-power at 107 mines.

Ventilation of the mines is produced by the use of 56 fans, 152 furnaces, and 128 mines are supplied with what is termed "natural ventilation."

The plan upon which 148 mines are worked is on the long-wall system, and at 188 mines the pillar-and-room system is in practice.

There were 42,975 kegs of powder consumed in the mines last year, and the aggregate cost of which, to the miners, amounted to $78,223.08.

The total number of employes in and about the mines during the winter season was 8856; in the summer season 5634, or an average for the year of 7245 men and boys.

The actual number of miners in winter was 7431; in summer, 4598, or an average during the year of 6014.

The other employes, such as day, month and outside men, numbered during the winter 1425, and in summer 1036, with an average for the year of 1230.

Owing to the small demand for coal and the large number of miners unemployed and seeking work, prices paid for mining during the past year were lower than ever known in this State.

The total product of the coal mines of the State for the year was 2,283,081 tons, a decrease compared with previous year of 4.2%.

The average price per ton received at the mines was $1.17, and the receipts from the sale of the output was $2,675,690.

Accidents in the coal mines during the year furnish gratifying evidence of better management generally, and the good resulting from a compliance with the laws requiring the proper safe-guards around, in and about the mines.

The fatal accidents number 13, a decrease of 32%. Non-fatal accidents numbered 15, a decrease of 45% compared with the previous year.

The number of wives made widows are 9, compared with 15 the year before, and the number of children made fatherless are 17, compared with 24 for preceding year.

The number of tons of coal mined for each life lost was 175,621, compared 125,438 tons, a difference in favor of this year of 50,183 tons.

Number of tons mined for each non-fatal accident was 152,205 tons, as against 82,271 tons last year, or 69,934 tons in favor of this year.

During the year 15 new mines have been opened and 8 mines worked out and abandoned.

The report furnishes under the head of the several coal producing counties a statement as to the nature and character of all the more important mines and the condition in which they were found at various inspections. The tables furnish the fullest information, in detail, of each and every mine in the State operated during the year:

TABLE I.

Statistical summary of the collieries of Missouri for the years ending June 30, 1894-5.

	1894.	1895.	Inc.	Dec.
No. of counties producing coal	34	34	....	
No. of mines including strip-pits	365	402	37	
No. of mines employing 10 or more men.	136	126	....	10
No. of fans in use	56	56	....	
No. of tons of coal mined	2,383,322	2,283,081	....	100,241
Amount received for the output	$3,013,075	$2,675,690	....	$337,385
Average price received per ton at mine	1 26	1.17	....	.09
Total number men employed in winter	8,864	8,856	....	8
Total number men employed in summer	6,424	5,634	....	790
Total number miners employed in winter	7,168	7,431	263	
Total number miners employed in summer	5,083	4,598	....	485
Total number other employes, winter	1,696	1,425	....	271
Total number other employes, summer	1,341	1,036	....	305
Total number kegs of powder used	52,728	42,975	....	9,753
Total cost of powder	$103,885	$78,223	....	$25,662
Total number men killed in mines	19	13	....	6
Total number wives made widows	13	9	....	4
Total number children made fatherless	24	18	....	6
Total number non-fatal accidents	27	15	....	12
No. tons mined for each life lost	125,438	175,621	50,183	
No. tons mined for each non-fatal accident	82,271	152,205	69,934	
No. new mines opened	16	15	....	1
No. mines worked out or abandoned	11	8	....	3

TABLE II.

This table is a record of new mines opened and old mines abandoned during the past year, with the name of the company or operator opening a new mine or abandoning an old one:

New mines opened and old mines abandoned.

New mines—Operators.	Counties.	No. of new mines....	Old mines—operators.	No. of mines abandoned.
O. K. Coal Co...............	Adair........	1	....	
Rich Hill Coal & Mining Co..	Bates........	1	J. M. Wise..................	1
Kansas Line Coal Co.	"	1	....	
George Young...............	"	1	....	
	Barton.......	....	Liberal Coal Co............	1
	Caldwell.....	....	Tom Creek Mine	1
Salisbury Coal Co...........	Chariton.....	1	....	
Missouri City Coal Co........	Clay........	1	North Kansas City Coal Co..	1
Hazel Springs Coal Co.	Cooper.......	1	....	
Norman Jones...............	Grundy......	1	....	
Nnob Noster Coal Co........	Johnson......	1	Thos. Boyd & Son...........	1
O. M. Gaffin................	Lafayette....	1	....	
J. Roswell..........	"	1	....	
Kansas & Texas Coal Co.....	Macon	1	Watson Coal Co.............	1
	"	....	Loomis Coal Co.............	1
J. Robinson.................	Randolph....	1	Caffery-Baker Coal Co.......	1
Mosby Bros.................	Ray..........	1	....	
Pence & Calnen.............	"	1	....	
Totals..................	....	15	....	8

TABLE III.

This table is a recapitulation of improvements at all mines, grouped in totals under the respective kinds of improvements.

Classified improvements at the mines for year ending June 30, 1895.

Air courses	3
“ enlarged	1
Boilers	3
Cables extended	1
Cages	27
Catches on cages	22
Covers for cages	18
Drums	2
Engines	6
“ repaired	1
“ houses	8
Entries enlarged	10
Fans erected	8
Furnaces built	5
“ repaired and enlarged	5
Gates built around shaft	2
Horse-powers, new	12
Houses built for miners	46
Iron track substituted for wood	1
Overcasts put in	3
Pipe for drainage, feet	2,600
Pit-cars built and renewed	720
Pit-heads erected	7
Platforms	4
Pumps	5
Repair-shops erected	2
Revolving screens	2
Ropes, hoisting	26
Scales	9
Screens	2
Shafts, new	18
“ air	19
“ retimbered	6
Side-tracks	5
Slope opening	1
Smoke-stacks	5
Stairways in escape-shafts	4
Steam-power	3
Tipple-houses	4
Tracks in mines	5
Weigh-houses	2

TABLE IV.

At all mines in the State where an improvement has been made during the past year, the nature and character of such improvement is shown in this table, together with the name of the operator of the respective mine and the county wherein it is located.

It will be noticed that the improvements and number of new mines opened have kept well up with the improvements made in the previous years, in spite of a depressed market and the serious difficulties contended with by the trade during the year.

TABLE IV.

Showing by counties the principal improvements made in Coal Mines during the year ending June 30, 1895.

Coal company.	County.	Improvements.
O. K. Coal Co	Adair	Engine-house, hoisting engine, pit-head, tipple and weigh-house erected; new ropes, cages, catches and covers for cage supplied; fan, fifteen new pit-cars and side-track built.
Pennsylvania Coal Co	"	New air-shaft; furnace removed and enlarged; twenty-four pit-cars and six new houses for miners built.
D. C. Scott	"	Escapement-shaft sunk.
J. D. Atkinson	Audrain	Entries brushed and new track laid.
Farber Coal Co	"	New steel boiler.
Robertson Bros	"	Shaft sunk and equipped with horse-power.
McGuire Mine	"	Shaft sunk and equipped with horse-power.
McCowen Mine	"	New drum.
Vandalia Coal Co	"	New pit-top and engine-house, engine repaired, new rope, cage, and machinery for brick works.
Wear Coal Co	Barton	Fifteen new 3-room houses for miners and twenty-five pit-cars rebuilt and overcast in mine erected.
W. A. Brown	"	Air-shaft sunk and new pump supplied.
Wilson Clark	"	New air-shaft.
Martin & Gee Coal Co	Bates	Furnace repaired, and twelve feet added to smoke-stack.
Kansas State Line Coal Co	"	New slope, equipped with horse-power and ten new pit-cars.
Rich Hill Coal Co	"	Revolving screen, engine, and 50 pit-cars rebuilt at mine No. 15.
" "	"	Air-shaft at Sim Jay mine, pump removed.
" "	"	Engine and boiler-house built, fan erected, new ropes, cages, catches, covers and 25 new pit-cars, track laid 1½ miles, and escape-shaft in course of construction at No. 19.
Walnut Mine Co	"	Air-shaft sunk.
Scott Gordon	Boone	Iron substituted for wooden rails.
Blackfoot Coal Co	"	Escape-shaft, equipped with horse-power, catches and covers placed on cage.
W. J. Carter	"	Screen and platform built.
J. A. Littel	Callaway	New tipple.
John Mahoney	"	New air-shaft.
J. S. Henderson	"	New air-shaft.
R. Cumberland	"	New air-shaft, and furnace and platform renewed.
Fulton Fire Brick & Mining Co	"	Fan substituted for furnace.
Caldwell Coal Co	Caldwell	Shaft retimbered and new air-courses.

TABLE IV—Continued.

Coal company.	County.	Improvements.
Salisbury Coal Co	Chariton	Engine, engine and boiler-house, tipple, weigh-house and 15 pit-cars built, and new scales, ropes, cages, covers and catches put in.
Missouri City Coal Co	Clay	Engine, engine and boiler-house, pit-top, tipple 30 pit-cars and side-track built, scales, cages, catches, covers and ropes supplied.
Norman Jones	Grundy	Engine, engine-house and 10 pit-cars built, new ropes and cages furnished.
L. W. Beaman	Henry	Catches on cages.
Jas. D. Mann	"	New cage.
Morris & Boyd	"	Escape-shaft sunk.
Terrill Co-operative Coal Co	"	Steam pump and boiler.
McLeod mine	"	Air-shaft, new ropes and cages.
McFadden Coal Co	"	Air-shaft.
Stockton Coal Co	"	New shaft, equipped with horse-power.
Hancock Coal Co	"	Shaft sunk, horse power and 10 pit-cars.
R. L. Thompson Coal Co	"	Engine substituted for horse-power; fan in place of furnace; engine-house.
Enterprise Coal Co	Howard	Scales and platform; 5 pit-cars.
Brush Creek Coal Co	Jackson	Worthington steam pump, new fan and 25 new pit-cars.
Thos. F. Wood	Johnson	Air-shaft.
M. B. Meilley	"	Air-shaft.
Carter & Son	Lafayette	Drainage, 1600 feet pipe.
Consolidated Farmers' Coal Co	"	Cage at No. 1 pit-head and horse-power. Mine No. 6, cages, ropes, catches, scales, 30 pit-cars, furnace and R. R. switch.
Corder Coal Co	"	Hoisting ropes.
Bonanza Coal Co	"	Entries enlarged.
St. Clair Bros	"	Air-shaft, shed and platform.
J. C. McGrew	"	New track and entries brushed.
Thos. Walton	"	Entry increased in heighth for 400 feet.
M. Hallowell	"	Air-shaft.
O. M. Goffin	"	Shaft and horse-power.
Hughes & Son	"	Furnace rebuilt and enlarged.
Fred. Kreutz	"	Air-shaft sunk.
Farmers' Coal Co	"	Furnace, air-ways, and entries enlarged at No. 2; shaft retimbered, pit-top and and smoke-stack built, scales put in and 45 pit-cars made and repaired.
J. Roswell	"	Shaft, new horse-power, ropes, cages, catches, covers, scales and 15 pit-cars built.
Southwestern Coal Co.	"	Escape-shaft, stairway, 10-foot fan, entries brushed.
Lexington Coal Co	"	Repair shop, equipped with lathe and track guage changed at Grady mine, main entry widened, double track, and 175 pit-cars renewed and built.

Geo. Clark	Linn	Ladder in air-shaft, gates around shaft opening.
Landreth & Son	"	Air-shaft.
Marceline Coal Co	"	Steam plant and 30 pit-cars built and renewed.
Loomis Coal Co	Macon	Bonnets on cages, gates at shaft No. 7.
Watson Coal Co.	"	Revolving screen and engine at the new mine.
Bevier Black Diamond.	"	New screen and additional track.
Kansas and Texas Coal Co	"	Mine No. 33, cable extended 1,000 feet, and overcast erected; No. 43, new shaft, stairway and 12 foot fan; No. 46, twenty new houses for miners built.
Emporia Coal Co	Putnam	Shaft sunk, pit-top and hoisting apparatus, escapement-shaft sunk and furnace built.
Elliott Coal Co	Randolph	New foundations for fan engine, two smoke-stacks, steam-pump, 1000 feet of pipe and 50 pit-cars built.
Cronan & Hogan	"	Repaired shaft, two new ropes, timbered and cleaned air-ways and mine repaired generally.
Interstate Coal Co	"	Two cages, catches, covers and shaft bottom retimbered.
James Robinson	"	Air-shaft sunk.
Williams' mine	"	New drum and air shaft repaired.
Pence & Calnen	Ray	Shaft sunk and equipped with horse-power, ropes, cages, catches, scales, 30 pit-cars and 1200 feet railroad track.
Douglas & Izett	"	New furnace.
Blackburn mine	Saline	Air-shaft.
Rich Hill Coal Co	Vernon	Overcast at No. 16.
Vernon Coal Co	"	Steam boilers.

LEGISLATION AND MINE INSPECTION.

It may not be out of place in connection with this report to note what has been accomplished for the benefit of the operators and miners of this State, under the mining laws as originally enacted and subsequently amended. Thirty years ago, when the present Mine Inspector came to this State, the mining industry was in its infancy, and for many years thereafter comparatively little attention was given to practical mining. The condition of the mines at the time, when considered with reference to security, ventilation and sanitation, was most imperfect and defective. There was not a ventilating fan in the State, nor was there a furnace at any of the mines of sufficient capacity to furnish the required quantity of air.

The Inspector has worked under mine bosses who had never seen a fan, furnace or other ventilating appliance employed in producing artificial ventilation. Most of the operators relied upon nature alone for ventilation, a most unreliable and uncertain method, especially in warm weather. The means for ingress and egress was confined, in the majority of cases, to a single shaft, and it was at the option of the operator, whether or not, he provided one or two outlets for the safety of miners in the event of danger. There were no safety-catches nor covers on the cages, neither were there gates around the shaft opening, nor brakes on drums.

Prior to the passage of the mining laws, it was not an uncommon occurrence to drive single entries 150 feet ahead of the air, or in fact just as far as the entry driver could work and survive. Rooms were turned off each side of the entry, and so as long as the lamp continued to burn and the miner sent out his coal, ventilation was deemed satisfactory. Thus the miner was plunged as it were into an almost stagnent and hourly thickening atmosphere, night finding him so weakened and prostrated by inhaling the foul air all day long that he could with difficulty wend his way home.

It is now fifteen years since the enactment of the first mining law, and its promoters in witnessing its good results have discovered the necessity for further amending the same several times since. While this State has as good laws as may be found in any of the mining states, and great improvement in the methods of mining are observed in all directions, yet there may be found mines worked and ventilated after the manner in vogue one hundred years ago, due to the management of a class of men of whom I shall further along call attention.

The first bill having for its object the better protection of the miners of the State was prepared and introduced by the Hon. Henry

A. Newman of Randolph county. It was passed in the year 1881, and afterward amended in the years 1883 and 1885, but not until the year 1887 was a law enacted providing for an inspection of mines by a State officer. Previous to the law creating a State Mine Inspector, the inspection of mines was made by county inspectors, appointed by the county court, under which system salaries being inconsequential, many counties neglected to make the appointment, while other counties frequently appointed incompetent and indifferent inspectors, with the result that the mines were but poorly and partially inspected, and the crude and reckless methods obtaining allowed to continue with but slight interference. The imperfections of this system became so apparent as to necessitate the enactment of the present law.

There followed soon after the enactment of this law a marked improvement in the methods of coal mining. The mines were rapidly supplied with ventilating appliances which furnished large and wholesome volumes of pure, fresh air, and under intelligent management, where the current of air is divided up and split into separate divisions, the miner receiving the air in its freshness and from the most direct route, has been greatly blessed thereby, when compared with his condition previous to such inspection. Increased attention is given to the importance of conducting the air into the rooms, and yet a still greater improvement in this direction is most desirable. Two entries are now driven parallel to each other, for the ingress and egress of the air current, with cross-cuts between them every fifty feet; substantial wooden doors on main entries have taken the place of the old canvass door, and trappers required to look after them in all mines employing fifty or more men. Every mine in the State entered by a shaft is supplied with two outlets; all cages are furnished with catches and covers; gates are found at all mine openings, and all drums are provided with brakes. The sanitary condition of the mines have been greatly improved and the general safety and comfort of the miners bettered.

The Inspector yet experiences much trouble with many mine bosses in having them maintain the condition referred to, but so long as the law demands these salvatory conditions, just so long, if occupying my position, will I insist upon their enforcement. The occupation of the miner, by reason of these laws, has been made safer, more endurable and more healthy, and experience demonstrates that in all improvements made with the above object in view that good results are observed in the condition of the mine itself: in other words, that those things which tend to improve the miners' health and safety also improves the mine and benefits the employer.

The plan upon which 148 mines are worked is on the long-wall system, and at 188 mines the pillar-and-room system is in practice.

There were 42,975 kegs of powder consumed in the mines last year, and the aggregate cost of which, to the miners, amounted to $78,223.08.

The total number of employes in and about the mines during the winter season was 8856; in the summer season 5634, or an average for the year of 7245 men and boys.

The actual number of miners in winter was 7431; in summer, 4598, or an average during the year of 6014.

The other employes, such as day, month and outside men, numbered during the winter 1425, and in summer 1036, with an average for the year of 1230.

Owing to the small demand for coal and the large number of miners unemployed and seeking work, prices paid for mining during the past year were lower than ever known in this State.

The total product of the coal mines of the State for the year was 2,283,081 tons, a decrease compared with previous year of 4.2%.

The average price per ton received at the mines was $1.17, and the receipts from the sale of the output was $2,675,690.

Accidents in the coal mines during the year furnish gratifying evidence of better management generally, and the good resulting from a compliance with the laws requiring the proper safe-guards around, in and about the mines.

The fatal accidents number 13, a decrease of 32%. Non-fatal accidents numbered 15, a decrease of 45% compared with the previous year.

The number of wives made widows are 9, compared with 15 the year before, and the number of children made fatherless are 17, compared with 24 for preceding year.

The number of tons of coal mined for each life lost was 175,621, compared 125,438 tons, a difference in favor of this year of 50,183 tons.

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During the year 15 new mines have been opened and 8 mines worked out and abandoned.

The report furnishes under the head of the several coal producing counties a statement as to the nature and character of all the more important mines and the condition in which they were found at various inspections. The tables furnish the fullest information, in detail, of each and every mine in the State operated during the year:

more poisonous than the fire-damp, requiring, aside from the large volume of powder smoke to be contented with, a much more vigorous current of air to expel it because of its density. With our many large and extensive mines, mining laws which do not provide for certificated mine officials are comparatively of little use. This has been demonstrated by the experience of all civilized mining countries. Upon an examination of British coal mining statistics, which cover a longer period than that of any other nation, it will be found that with careful mine inspection by competent inspectors, but with the mine officials uncertificated that the fatalities of the mines of that country averaged one to every 312 employes, while the average fatality has been one to every 533 employes since the enactment of a law requiring certificated officials. In other words, the occupation of the miner has been rendered 70 per cent safer as a result of the law.

In view of the above and the expressed opinion of a large majority of our most experienced and practical miners that such law should be upon our statute books, it is hoped that the next Legislature will so amend our mining laws as to require all men in charge of a mine employing 25 or more men to pass an examination, which will demand as a requisite qualification for such position, that each official of the kind shall be a practical, sober, intelligent and energetic miner, thoroughly equipped for the duties of the underground workings of a coal mine, its proper ventilation, the regulation and control of air currents and a familiarity with the kind, nature and character of gases encountered.

It is our firm conviction that a law enacted for this purpose will prove of incalculable benefit to the mining interest of the State, wherein the interest of operator and miner alike will be better subserved.

VENTILATION OF MINES.

The ventilation of coal mines is a matter of such vital importance, not only with reference to the miner, but to the successful operation of a mine, as to admit of frequent reference to it. If herein anything can be added that will tend to stimulate effort on the part of those whose duty it is to look after this important feature of underground work, and thus advance greater interest in the betterment of the condition of our mines, I feel it my duty so to do in face of the possible charge and criticism that the subject is too often referred to. An able author in his treatment of the subject of ventilation states, in substance, "that in mines which are free from fire-damp less elaborate arrangement will serve every requirement of health and safety." From which it might be inferred that such mines are always in a perfect state of ventilation. Unfortunately, however, the absence of fire-damp in a mine is too often accepted as a privilege for neglecting ventilation. In many non-fiery mines the miner is often subjected to an atmosphere so thick and stagnant that his lamp cannot be kept burning without being turned upside down, and his energies so enervated by inhaling foul air as to unfit him for a full day's work. In a mine where fire-damp exists and a sweeping current of air is made to travel the working face, diluting and rendering harmless the gas, it has been estimated that a man will do fully one-fourth more work than he could possibly do in a mine where the atmosphere is allowed to remain in an impure state.

It then follows that the output of a mine can be increased 25 per cent when well ventilated, and clearly shows the benefits derived by both employer and employe under proper ventilation.

Foul air in a mine not only works an injury to the health and energies of the miner, but also produces a decidedly bad effect upon everything employed in it, wood and iron alike suffer and renewal of each is occasioned the oftener.

On the other hand, with a sweeping current of fresh air freely circulating through the mine, life is furnished to everything, the animate and inanimate; the miner works better, lives longer, and even the iron and timbers are preserved from rust and decay.

As the atmosphere of a mine will become vitiated, and at times rapidly and seriously so, the necessary appliances to relieve and prevent such condition should at all times be present. The true object, purpose and meaning of ventilation, contemplates the expelling of vitiated air and supplying its place with an equal volume of pure air.

The first question which should address itself to the attention of the mine superintendent, with reference to the ventilation of his mine should be: in what quantity shall fresh air be forced into the mine to free it and keep it clear of all gases and in a good sanitary condition, or what quantity of vitiated air shall be expelled from the mine in a given time? The following statements in connection with the ventilation of coal mines have been made by some of the most practical mining experts of Great Britain:

Mr. Hedley, inspector of mines, states, "that in practice he moved from 100 to 500 cubic feet of air per minute for every miner employed."

Mr. Dunn, inspector of mines, states, "I should say the minimum quantity of air for the most harmless of mines, ought to be from 100 to 150 cubic feet of air per minute for each man in the mine."

Mr. Markworth, another inspector of mines, states that "after having examined and measured the ventilation in a great number of mines, he found that where there was no escape of fire-damp, and little of any other mineral gases, 100 cubic feet per minute for each man and boy was the minimum quantity of air essential for sanitary purposes alone."

From the above it will be seen that from the very highest authority that 100 cubic feet of air per minute for each man under the most favorable circumstances should be maintained in order to preserve the health in a mine which is clear of any kind of gas. As there are no mines entirely free from gas, it is apparent that a larger volume than the minimum mentioned should be furnished a mine where gases are known to exist. The next question naturally arrising in the minds of those interested is: How are the mines of this State being supplied with ventilation? do many fail to furnish the required quantity of air, etc.? The Mine Inspector, in the pursuit of his duties, has had occasion to visit each mine in the State of any importance from two to four times each during the past year. It is his pleasure to state that with very few exceptions all the mines in this State are well equipped with ventilating appliances, and that almost universally large volumes of air are forced into the mines, and which, if properly conducted and distributed would furnish every miner employed a full supply of fresh air. Unfortunately, however, the great volume of air furnished is not properly utilized; inexperience and neglect on the part of many in charge of mines in permitting defective doors, chocked air-ways and the like cause much suffering to the miner for want of air, while the same is in great abundance and actually wasting for lack of its proper conduct to the working places.

Too frequently main air-ways, through which the ventilative current should pass freely from the downcast to the upcast, are cramped in sectional area, while it should be apparent to all that the return airways should be equal in area to the intakes; properly the return airways should be somewhat larger, because the current by the time it reaches them is heated in its passage through the mine, and consequently its volume is augmented.

Air-courses are usually constructed, so as to permit the passage of a volume of air, which will meet the wants of the miner, and if by any reason they are allowed to be diminished in area, by falls, etc., the volume of air is decreased in consequence.

Any means employed to enlarge the passage-way of the air, either by widening the air-course or by breaking them up into sections or splits, so that a number of currents will act at the same time and thus supply different districts, will remove the principal factors of resistance in mine ventilation. One of the most important conditions to be determined, is that the ventilative current shall be made to take the most direct course possible from the downcast to the working places. Formerly the pernicious custom of ventilating all excavation and openings in the mine in succession, from downcast to upcast, taking in on its route the working places of the miners, was most prevalent and not yet altogether abandoned. From such methods it is not difficult to see how the air of a mine passing through the abandoned works, then from one set of men to the other would be impregnated with impurities before the last set of men were reached by it. As stated in a previous report the miner should have his air direct from the downcast and plenty of it.

The improved method of ventilating with separate currents of air, under the management of a competent superintendent, should make it an easy matter in this State to furnish every miner with good air.

Indeed, it is little less than criminal to place an incompetent man in charge of our mines, considering the great number of lives at stake. Mine owners make great mistakes from an economical view, in placing men lacking practical experience in charge of their mines; the extra expense occasioned by falls and other things of a similar nature would pay for the employment of a man whose practical eye would detect and secure a roof that would never be seen by the other fellows, until he paid for bringing it to the surface.

While poor ventilation may be reckoned as costing the operator dollars and cents, yet the miner, when subject to it surrenders energy, health, and very often life.

DOORS IN MINES.

Where entries are used as traveling roads, obviously a permanent stopping cannot be erected, and in entries where it is not intended that the air current shall pass, doors are used to prevent its passage.

It is also manifestly impossible to construct a door capable of resisting the force of an explosion, such as occur in a gaseous mine, or the force from windy shots so often happening, where the coal is shot off of the solid. It is also practically impossible to make a mine door air-tight, so that their employment must of necessity result in a serious loss of air under the most favorable circumstances. For these reasons where practicable, and as much as possible, their use should be avoided. In connection with the ventilation of mines, however, we cannot see how it is possible to dispence with them altogether. Then, so long as they cannot be done away, it is therefore most necessary that the closest attention be given to their location, erection and continual good repair. In unimportant locations a single door may answer the purpose very well, but at points subject to much travel or the passage of trips, double doors are all important. The distance between double doors should be sufficient to permit the longest possible trip of cars to stand between them. Primarily the use of double doors is to keep the passage-way constantly closed, as the second door should never be opened until the first has been closed. It will also be seen that another advantage lies in the reduction of the loss of air by leakage, consequent upon the increased resistence offered in the employment of two doors.

In hanging a door, care should be taken to make it rest closely against the framing, so as to reduce the leakage as much as possible. To the same end the parts of the framing and of the door which come in contact, should be covered with canvass. The framing in its construction should be inclined for the purpose of causing the door to close by its own weight when open.

At all important doors a trapper should be in constant attendance to open them when required and to close them immediately after the passage of a trip. The opening of a door simply to permit the passage of a man or mule has an effect on the air current, as a portion of it is allowed to waste, and this loss is still further increased if the door is not well constructed and carefully hung. Unless doors located at important points are promptly closed and kept closed after the passage of trips, the required ventilation cannot be maintained. Yet it is a common occurrence at some mines where trappers are not employed to find drivers not only leaving doors open, but frequently leave them propped open until they return with a trip. This is a fruitful source of producing defective ventilation, and which defect may be complained of to the Inspector by the miner, and the remedy remain unsolved until the cause is discovered in the driver.

The cure for this is with the pit-boss, whose business it is to watch for all such neglect and insubordination, and if he has not the courage to discharge the guilty person, he should see to it that a trapper is employed. That ancient method of using curtains instead of wooden doors is still in practice in several of the mines, in some of which, these curtains may be found on main entries, where the full current of air for the entire mine has to be turned. There is at all times a great leakage of air where curtains are hung, even when in the best possible condition, and this is especially so when a curtain is hung on a main haulage-way. At all points where the course of the main current is diverted, a tightly-built wooden door and not a curtain should be hung.

Experts on mines and mining, referring to the use of curtains, state as a scientific fact that curtain doors should not be used on main entries where the current is so strong that the pressure of which will hold up the curtains and permit a large portion of the air to escape. I fully agree with them and go further, giving it as my conviction that curtain doors should not be used in any portion of the mine. I have noticed many of them on my visits to the mines so badly torn that I would take nothing as a preference. The importance of well-constructed doors cannot be too strongly urged upon the attention of mine superintendants and foremen.

It has been well stated in a previous report and will bear repeating, that though a mine be ever so well equipped with powerful ventilating appliances for the supply of air, with large, clean air-ways and a sweeping current entering the mine, and yet if its doors are not properly hung and cared for, perfection in other appliances will avail nothing. My experience for the past year in the mines of the State induces me to emphasize the importance of this matter upon all parties interested.

MINE MAPS.

The importance and necessity of possessing an accurate map of a coal mine is not recognized by mine operators, to that extent which its usefulness deserves. Many operators regard the requirements in the matter of mine maps as a nuisance, and prepare them only when in close proximity to boundary lines or to satisfy the demands of the law. A good map of a mine—one that can be relied on—is of great value to anyone operating on a large scale. When properly utilized, the mistakes avoided by its use will repay many times over its cost. It will furnish more satisfactory information and give a better insight into the underground working of the mine to property owners and stockholders than can be had by any other means. At a glance the numerous entries and rooms are taken into view, the extent of the worked out and unworked field, with boundary lines, and many other things of like import are spread out before one in such manner as will enable him to comprehend the situation more readily than could be obtained by weeks of toil in the mines.

A mine foreman with a map before him can plan his work months ahead much more intelligently than he could possibly do so without it. He sees how far he can go without encroaching upon the property of his neighbor, or recklessly run an entry or a room into an abandoned mine filled with water which, if tapped, would flood his mine and possibly cause great loss of life and the destruction of much property. The map is further useful to the foreman as an aid in locating doors for distributing the ventilative current to parts where it will best serve the purpose for which it was intended. It also indicates where new work can be located, and enables him with accuracy to make changes suited to all the conditions and surroundings. The mine map is of great assistance to the Mine Inspector, as it enables him to readily trace out the route traveled by the air current, and when defects are found in the ventilating current the opportunity afforded him by its use to discover where and how to remedy the defects are very helpful and greatly appreciated. In fact, no mine is altogether successfully operated without the use of an accurate map of the same. There are a large number of so-called maps in this office which occasion a great stretch of the imagination to call them maps. They are executed with a pencil upon brown paper, and show the entrance to the mine with a few entries, no attempt being made to indicate an air current, location of doors, cross-cuts or boundary lines, and references and explanations are evidently deemed unnecessary. The best that can be said of them is that they are worth a little less than nothing. The importance of a good map has been most fully illustrated in this State during the past year. Several of the mines working in the neighborhood of old and abandoned mines were required out of precaution and in accordance with the law to keep bore-holes 20 feet in advance of all work approaching the abandoned mine. Aside from the elements of uncertainty the cost of doing this work was quite an item.

Had maps of these mines been made as the law required, the operators could easily located the boundary of the old work and proceeded with the mining of their coal without risk or extra cost. A mine that is being driven in the direction of one that is old or abandoned, requires the utmost care and attention. It is necessarily attended with much anxiety, and to provide against contingencies, the expenditure of a much larger sum than would be the case if the excavation of the old and the new work were plainly pointed out by a good map. A mine that has been worked out and abandoned for some years and no map in existence showing the limits of its excavations, is a dangerous thing to approach from the coal level. It may be filled with water or with water and gas, and an unexpected break-through between the new and old mines is always attended with great loss in time and money, and very often with serious loss of life.

An experience of this nature occurred at the Bevier Black Diamond mine, of such recent date as to remain fresh, especially in the minds of some of the miners of Bevier. Portions of this mine were being driven in the direction of an abandoned mine known to be full of water. There was nothing in existence indicating the limits of the worked-out portions of this mine, and all work in that direction was frought with uncertainty and great danger. Realizing the fearful possibilities of a mistake in judgment on the part of the mine manager, a letter was addressed the manager from this office, notifying him of our fears and instructing that bore-holes must be kept 20 feet in advance of all work in all directions prosecuted in the direction of the abandoned mine. These instructions were followed only in part by keeping a bore-hole in the center of the entry, and one day the water broke through at the cutting. There were 125 men at work in the mine at the time—all got out safe, though they hurried through water waist deep. This I consider a serious lesson, and should be remembered.

Mine No. 7, Loomis Coal Company, located near Bevier, is being driven in the direction of an abandoned mine, and for the reason that there are no maps indicating the worked-out district, bore-holes are required to be kept 20 feet in advance of all work in every direction, at a cost considerably above that of preparing a map. These are only a few of many instances of the kind where this extraordinary precaution and great expense is made necessary for want of a mine map. My predecessor wrote a strong article on this important subject, which appeared in the 6th annual report of this Department, in which he clearly and forcibly pointed out the great benefit and advantages derived from the possession of a good mine map, requesting all operators to file maps and comply with the law. We have continued in the effort to impress the importance of this matter upon owners and operators of mines, and now insist upon a full and complete compliance with the law, in the interest of the present and future operation of mines within the limits of the State.

SOCIAL CONDITION OF THE MINER.

Attention having been called in various ways to the physical condition of the mines, a brief reference to the social life and habits of the miner may not be without interest.

The Mine Inspector for this State can justly lay claim to a familiarity with the subject, acquired by the actual experience and personal observation of a life spent in the mines, and embracing the life lived for many years as a miner.

The miner of today it must be remembered, is a far different man from the miner of some years past. While there are a large number of men in the mines at present who have had many years of experience in this State, yet the changed conditions brought about by the introduction of so many new men, foreign not only to the old miner in language and habits, but many of them also in the color of their skin, and many of both descriptions totally lacking in the elements of pride and decency. This, in addition to the accompaning result from an excess of labor of an inferior order, brought about a reduction in the price of mining, and wrought an astounding change in the social condition of the miner. For these reasons I much prefer a reference to the miner as he was.

As a class, the miners are of a liberal disposition, and it is a difficult matter for them to reconcile their wants to the scanty fare made necessary by present earnings. Their love of the comforts of life, especially so in the matter of table supplies is proverbial, for as long as their means would permit, their tables were supplied with substantial food of good quality, variety and frequent changes.

They are given to hospitality, and take great pleasure in entertaining liberally at their homes, and oftimes in order to furnish their entertainments in good style for a brief time, they are compelled for a while thereafter to deprive themselves of many needed things until they can even up with their earnings.

The nature and character of the miner's employment will not permit even a suspicion of his being well attired while at work, but let him get out of the mine after his day's work, finish the very thorough bath which he takes every day, don his good clothes and aside from the appearance of his hands which bespeak his hard work, he would not be regarded as a man doing labor of any kind. The reason for their making a good appearance when dressed is due to the fact that the miners keep themselves cleaner than any other class of laboring men. It is not an uncommon thing for the old miner, if he should put on his working clothes for only a few moments, and for some reason not work that day, to go through the bathing performance just as though he had been working in the mine all day.

Cleanliness and the fact that in the mine he is subject to the same temperature the year round, where neither sunshine, cold or heat render him uncomfortable while at work, his complexion is better preserved thereby than that of many ladies who give great attention to such matters.

The miner must, to be equipped in accordance with his views, have a Sunday suit, and is particular that it accord with the fashions of the day.

The miner takes a commendable pride in his wife and children, especially with reference to their comfort and attire, and any deprivation in this respect is keenly felt. The contrast in the miner's family of today in this particular is very striking compared with their condition several years ago, as the greatest economy in all things is absolutely necessary to provide against want, owing to the very limited amount of work offered and consequent small earnings.

The miner is fond of reading and will often be found well posted on all the current topics of the day. Newspapers are welcome visitors at their homes, and he is poor indeed who does not subscribe for some paper or periodical. As a rule, the miner does not attempt to grasp numerous subjects at any one time, but prefers to learn well and master if possible, a creditable acquaintance with a few subjects. It is seldom that you can visit the home of a miner and not find some good as well as entertaining book to read; in some instances works of the great authors are to be found in their limited libraries.

The miners are taking a great interest in our public schools; large numbers of them, like the State Mine Inspector, entered the mines at a tender age and were thus deprived of an education; forcibly realizing the disadvantages they labor under, they are using every effort possible to take advantage of the splendid opportunities offered in this direction to have their children attend school and great number of their children have and are acquiring an acquaintance with the lower branches, while many others succeed to the higher branches of study.

In mining camps the miner rents his house, but where the mines are located near a city or town, the miner in many instances owns his home and takes great pleasure in surrounding it with an air of cheerfulness and with the comforts that would do honor to more pretentious domiciles. The yards in front of their homes will be found adorned with ornamental plants and flowers, giving evidence of the change that might be wrought in the home-life and appearance of their homes, were their environments alike at all places. The side and rear yards at the home of the miner will be found, wherever available, utilized as a garden, which proves quite a help oftimes in the slack months of summer work. Nearly all of the miners having families have a pigpen and his crop raised therein makes a precious addition to his winter stock of supplies. Very few miners are able to keep a cow, owing to the State law restraining any one from allowing stock to run at large; thus, the luxuries of milk and butter are dispensed with altogether or purchased at such times as their means will afford it. The religion of the miner is very similar to that of all other classes of people in this country. There is a great diversity of faith. Many families are conscientious and devout Christians and very devoted to their respective churches, but the great majority are not religiously inclined in the general acceptation of this term.

There are many reasons why this great majority are indifferent to the subject of religion. In the first place, many of the mining camps are distant from cities or towns and are thus deprived of the privileges, benefits and influence of the church, while at other camps where a church exists, too often the pulpit is occupied by a minister who lacks the ability and influence to command attention. The great majority of the miners are fond of amusements. All athletic sports, quoit-pitching, jumping, base ball and other games are engaged in with great vim and pleasure. The miner is also extravagantly fond of social parties, especially dancing, and no class of people display greater tolerance and respect for the rights of others in these parties than the miners. There is no great hungering and thirsting after total abstinence ; to the contrary, it is a rare case indeed when you meet a miner who will refuse to join you in a social glass of beer, which is their favorite and almost universal drink, and yet drunkenness is no more common among the miners than with other classes.

When a miner is afflicted by disease, injury or other cause, great sympathy is at once awakened in his brother miners, and it is an extreme case where they submit to or accept pauper benefits for either the sick or deceased, there appearing to exist in the fraternity an innate pride, which renders such assistance abhorent, and it is repulsed with all the powers they can exert. The sick are tenderly cared for and their dead buried with all due respect and honor.

COMPANY HOUSES, OR THE HOME OF THE MINER.

In mining villages and camps, the individual or company owning the mine also owns the houses in which the miners make their homes and pay rent at the almost universal price of two dollars per room.

As a rule, coal mines are located outside the limits of cities or towns, and to economize on space and time, the dwelling houses are located as near as possible to the mine shafts or openings. These houses are all small, consisting of two or three rooms and are very cheaply constructed, a large per cent of them being common box-houses, 28x14 feet, 7 to 8 feet high, with a partition dividing the same into two compartments or rooms. They are usually built 25 feet apart in great long rows, with a painful uniformity or similarity about them from beginning to end. A large number of houses are unpainted, while many others are sadly in need of repair.

The rent is about the same throughout the State. For two rooms, $4 is the price paid, and for three-room houses, a rent of $6 per month is charged. The collection of rent is greatly simplified at coal mines, as it is deducted from the earnings of the miner before payment of dues is tendered. A mining camp is not an inviting place to live in, nor is its prospect entrancing, as the general appearance of everything is suggestive of the very reverse. In the mining camp towering prominently above everything else, will be noticed first, the head-gear with its equipment, while along side of it will be seen a mountain of material composed of the refuse of the mine which reaches high above the house tops. This huge mass has in it the constituents which produce spontaneous combustion, and it burns and burns, continually throwing off its sulphury, poisonous fumes and filling the air with such an unpleasant odor as to make one who is not compelled by necessity to endure it, to wonder that human beings could breathe it constantly and yet live.

If attention is drawn to a closer inspection of the miner's home, it will be observed that the intervening space between the houses, and in fact all the surroundings are covered with cinders and coal-dust, and at once presenting a picture dismal and most forbidding in the extreme; nor is this gloomy and monotonous prospect relieved by even the presence of trees, grass or other vegetation, to say nothing of the beauties of flowers with their refining influence.

The miner purchases his fuel from the operator for whom he is at work, and as a rule, custom price is paid. From the above it is not a difficult matter to conclude that the situation and condition of the miners is not one to be envied, but to the contrary, when we view him surrounded at his work by many dangers unknown to work on the surface, his uninviting home and gloomy surroundings, we can but pity and deplore his hard lot.

LITIGATION.

A part of section 7077, of the Revised Statutes of the State of Missouri, reads as follows:

And in all dry and dusty coal mines discharging light carbonated hydrogen gas, or mines where the coal is blasted off of the solid shot-firers must be employed to fire all shots after the employes and all other persons have retired from the mine.

Upon a visit to mine No. 46 of the Kansas & Texas Coal Co., located in Macon county, I found the above law being violated, and so informed the superintendent of the mine, to which he took exceptions, stating that he did not consider the law applied to the mine, as the miners cut the side of the coal, and hence there was no shooting off of the solid. Knowing that the Superintendent was not a practical mine man by any means, yet the stand taken by him was so directly in opposition to all past experience and usage as to astonish me. I, of course, would have been more astonished had the superintendent been a man of mining experience. In direct opposition to my instructions, he continued to operate in violatian of law, with the result that suit was instituted. The suit was brought in a justice of a peace court, and was decided against us, which was due principally to lack of practical ability on the part of the jurors to grasp the questions intelligently.

When it is understood that the object of the law was for the better protection of the miner, how strange that there were miners who testified in favor of the operators (in order to get a soft job) and directly against their own safety and interest. The Inspector has been most anxious to see all laws enforced which concern the miners, and especially so where life and limb are at stake and the health and general welfare of the miner may be promoted.

Assured that I was right and that the situation demanded an intelligent decision of the matter, a new suit with new evidence was entered in the Circuit Court, and the trial is looked for at no distant day. In the meantime, wishing to fortify myself in the position taken, by experts and men of large experience and known ability all over the United States, the following letter was addressed to the most prominent and experienced men of the country:

JEFFERSON CITY, Mo., July 6, 1895.

Dear Sir—The question as to what constitutes "shooting off the solid" has arisen here, and I shall be greatly obliged for your definition of this coal mining term.

If, for instance, a side is cut ahead in the solid coal, giving it a loose end, no undermining whatever having been done, and a shot is fired under the above conditions, do you consider such shot fired on the solid or not? Of course, experience, usage and the general understanding regarding such work are to weigh in determining the matter.

You will further oblige me, by stating how many years of mining experience you have had, and your present official position.

Yours very respectfully,
CHAS. EVANS,
State Mine Inspector.

The following are responses to above. They have proved most gratifying to me, as they fully endorse my views and the position taken:

SPRINGFIELD, July 12, 1895.

Mr. Charles Evans, State Inspector of Mines, Jefferson City, Mo.:

Dear Sir—Your letter of July 6, 1895, received. I define "shooting off the solid" as blasting in a seam without undermining or overmining the material to be loosened by the blast.

In reply to your question, "If, for instance, a side is cut ahead in the solid coal, giving it a loose end, no undermining whatever having been done, and a shot

is fired under the above conditions, do you consider such shot fired on the solid or not?" I consider such shot fired on the solid.

I have had over twenty years of mining experience. My present official position in the Mine Inspection Service of the State of Illinois is that of Inspector of Mines for the Fourth inspection district.

Yours, respectfully,
JOHN KEAY.

COLUMBUS, O., July 15, 1894.

Hon. Chas. Evans, State Mine Inspector, Jefferson City, Mo.:

Dear Sir—Yours of the 6th inst. just received, requesting me to define the coal mining term "shooting off the solid" and specifying the condition, to wit: A side is cut ahead in the solid coal giving it a loose end, no under or overmining being done.

If no other system of detaching the coal from its original compact form is pursued and a shot is fired under the above conditions, I would consider such a shot fired off the solid, as the breach made in the solid coal by cutting ahead gives the explosive charge in the parallel hole an effective working space. The mere cutting does not relieve the object to be removed from its solid compactness.

My practical experience in the coal field dates back from 1861, extending through the coal fields of Pennsylvania, Ohio and Indiana. My present official position is District Inspector of Mines for the Second district of Ohio.

Very respectfully,
ALEX. BEATTIE.

GARDNER, July 9, 1895.

Mr. Chas. Evans, State Mine Inspector, Jefferson City, Mo.:

Dear Sir—In answer to yours of the 6th inst., I give you the following as my definition of the mining term "blasting off the solid:" Whenever coal is blasted without being under or overmined, in mining parlance it is said to be "blasted off the solid." Where coal is cut ahead on one side and then blasted, it is still said to be blasted off the solid. In this section, in driving entry, the coal is frequently cut in the middle and blasted from each side. In this case we say we cut in the middle and shoot off the solid. I never knew it to be construed otherwise.

My mining experience covers a period of over 38 years, both in Scotland and the States.

T. S. CUMMING,
State Inspector of Mines, 1st Dist. Illinois.

RICH HILL, Mo., July 10, 1895.

Charles Evans, Esq., State Mine Inspector, Jefferson City, Mo.:

Dear Sir—Your favor of the 6th inst., relative to the question of what constitutes shooting off the solid in coal mines is received.

In reply, will state that I consider the firing of a shot in coal where a side-cut ("only") is made firing or shooting off the solid, for the following reasons:

***First*—A side-cut in an entry or room, no matter how wide or deep the cutting, would still leave the balance of the coal solid and standing, and I feel quite positive it would remain so throughout all time if not molested.**

***Second*—If the cutting was made under the coal, as it is done where this system is followed, say from three to five or six feet deep across the room, and a shot**

fired in the top. then I consider it not shooting off the solid. For it would, in the course of time, fall of its own weight, having no support underneath.

I have had 28 years experience in and around coal mines, and have filled all kinds of positions in various departments pertaining to coal mining and coal business. At present am superintendent of this company.

Yours truly,
W. B. Williams,
Supt. Rich Hill Coal & Mining Co.

Poteau, I. T., August 2, 1895.

Hon. Charles Evans, State Mine Inspector, Jefferson City, Mo.:

Dear Sir—I am in receipt of yours of the 6th ult., asking my opinion as to what is "shooting off the solid;" also my experience in mining. I have been employed in and about mines during the past twenty-four years.

I consider any shot fired without being undermined—that is, without cutting away and removing a portion of the coal or fire clay underlying it so as to give the powder a chance to bring down the overhanging mass—shooting off the solid.

If a mining is made two feet and a hole drilled in such a way that the point of hole is four feet from face of coal, the shot, in my judgment, is two feet on the solid, or such distance on the solid as it is from back of mining to point of drill-hole, no matter if a cutting has been made the full depth of the hole.

Yours, truly,
C. C. Woodson.

I am in charge of the coal interest for the Central Coal & Coke Company in the Indian Territory. We are now leasing coal lands and prospecting for coal.

Oskaloosa, Ia., July 12, 1895.

Chas. Evans, Mine Inspector, Jefferson City:

Dear Sir—On arriving home I find yours of July 6th, and would say at a moment's notice, my idea would be a shot that is not mined is on the solid, a shot being fired out of the solid is different.

You must take the feet out from under a shot of coal or it is on the solid. I would like to hear from you after your decision.

Yours respectfully,
J. W. Miller.

Johnstown, Pa., July 13, 1895.

Mr. Chas. Evans, Jefferson City, Mo.:

My Dear Sir—Yours of July 6 just received. In reply to your question I would say such a shot would be on the solid. Of course, as you have stated, experience, usage and the general understanding of the term causes me to say unhesitatingly that such a shot would be on the solid, as no undermining was done. In our anthracite mines it is all blasting from the solid (or termed so), yet no good practical miner scarcely ever puts a shot in his breast but what has a loose end to it, and partly makes a loose end for another shot, or at least he intends his shot to do so. I have had 39 years of experience in mines, having been in the mines since I was 9 years of age. My present position is State Mine Inspector.

Yours respectfully,
J. T. Evans.

OFFICE OF THE EIGHTH BITUMINOUS INSPECTION DISTRICT,
PHILIPSBURG, CENTRE CO., July 13, 1895.

Mr. Chas. Evans, State Mine Inspector of Missouri :

Dear Sir—I received your favor of the 6th inst , forwarded from Harrisburg, O. K. In reply to same will say that there are several conditions existing in block coal, some of which is found in Mercer county, Pensylvania, and North Lawrence, Stark county, Ohio, of which I have a practical knowledge. In the first of this question, shooting off of the solid, where one side is cut or shearing had been done and a square face of coal in a room or entry was to be blasted, and no under-cutting or upper-cutting existed, and a shot fired diagonally under these conditions, such a shot would be off of the solid.

Again, though shearing be made to sever the coal at the rib side, and no undermining or over-cutting being made to separate the coal from the underlying and overlying strata, and a shot fired in the coal under the above conditions would be off of the solid. So long as the miner does not undermine his coal it is shooting off of the solid, the same as sinking shafts or driving tunnels in rock, which is all done off of the solid. Your last question, I would say: I have had experience at inside of mines, both ore and coal, block, semi-bituminous and bituminous, and have advanced from a miner, at 18 years of age, to fire-boss, pit-boss, mine superintendent, and my present position is Mine Inspector of the Eighth District of Pennsylvania, a total of 23 years. Hoping this is complete, as per request, I remain,

Respectfully,
JOSEPH KNAPPER,
Inspector.

PITTSBURG, KAS , July 11, 1895.

Chas. Evans, Esq., State Mine Inspector, Jefferson City, Mo.:

Dear Sir—Your inquiry of the 6th inst. as to what constituted shooting off the solid has been received and noted. Your question as stated is as follows: If, for instance, the side is cut ahead in the solid coal, giving it a loose end, no undermining whatever having been done, and a shot is fired under the above conditions, do you consider such a shot fired on the solid or not? Of course, experience, usage and the general understanding regarding such work are a way in determining the matter. I will endeavor to answer your question to the best of my ability. Technically, a shot fired under the above conditions is shooting off the solid. My understanding of the technical term as used by you is that any shot that is not undermined is shooting off the solid. In our districts here such, however, is not the case, as very little undermining is done in this district. The principal point to be observed in preparing a shot in this district is to see that it is cut clear of the drill-hole and properly balanced, or, in other words, that the drill-hole is not bored ahead of the face of the shot. I will endeaver to explain myself better by illustrating, as follows: Should a shot be three feet thick at the front and three feet thick at the back of the drill-hole and six feet long on the cut face and the drill-hole would be bored five feet, we would not consider such a shot shooting off the solid, but should the cut face of the shot be four feet long and the drill-hole be five feet, we would consider such a shot shooting off the solid. However, as I have stated above in my opinion technically, any shot that is not undermined might be considered shooting off the solid.

In regard to stating my mine experience, I would state that I have been employed in and around mines for 21 years in various capacities. I have mined coal in Illinois, where it was a shooting vein, and Indian Territory, Indiana and Montana. My present position is General Superintendent for the Wear Coal Co., which position I have filled for the past six years.

I remain, yours respectfully,

A. B. Kirkwood, Gen'l Supt.

Galva, Ill., July 10, 1895.

Mr. Chas. Evans, State Mine Inspector, Jefferson City, Mo.:

Dear Sir—Your favor of 6th inst. to hand and contents noted. In regard to defining what constitutes "shooting off the solid" will say that in this state—Illinois—all coal that is blasted, without having been under-cut or undermined previous to shooting it, is considered blasted from the solid, regardless of whether any cutting in a vertical direction is made or not. And in mining parlance "blasting off solid" is the term used by miners when describing shots that were not undermined. For instance, we can take a tract or block of coal, and if an entry was driven all around it, the block of coal would still be solid. Have had 25 years' experience in mining. Present position, State Mine Inspector, Second district. There are five State Inspectors in this State. Find herewith annual report to be filled by coal operators.

Yours truly,

Edw. Fellows.

Akron, Ohio, July 10, 1895.

Chas. Evans, Esq., State Mine Inspector of Mo.:

Dear Sir—Yours of the 6th inst. to hand, and in answer to your questions regarding the definition of blasting or shooting off of the solid. If the coal is cut ahead and not undermined, of course its shooting off the solid. For instance, a room has a square face, the miner will have to put in a gouging shot for the purpose of getting butts, and that means a loose end, but its shooting off the solid when not undercut. I have had 38 years experience as a miner, and I have served three years and nine months as District Inspector of the State of Ohio. My term of office expired April 30, 1894. I remain with best wishes,

Ebenezer Lewis,

Ex-Mine Inspector, 7th district Ohio.

Leesville, O., July 12, 1895.

Hon. Chas. Evans, Jefferson City, Mo.:

My Dear Sir—Hastily replying to your letter of July 6th, concerning the term "shooting off the solid:" When the coal is not mined under or on top, it is not freed from the superincumbent weight, hence it is solid, though it would be sheard and have a loose end. Solid shots are sheard at one end, or so arrainged that they will hoist to the face, which is termed "lifting."

My experience in coal mining has been a period of 27 years as mine foreman and inspector. The latter position I have held for five years. Hoping this to be a satisfactory answer to your question, I am

Yours very truly,

Thos. H. Love,

5th Dist. Mine Inspector of Ohio.

Shawnee, O., July 10, 1895.

Hon. Charles Evans, State Mine Inspector, Jefferson City, Mo.:

Dear Sir—In compliance with your request, would say that I have mined coal and been connected with mines in eleven states of this Union, and have had fifty years' experience in that line, and we consider all coal shot off the solid that is shot without being undermined. If even you shear one side or cut it ahead and shoot it with undermining it, we call it shooting off the solid.

Very truly yours,

R. H. Miller,

Inspector of the Third Mining District of Ohio.

Leavenworth, Kansas, July 15, 1895.

Hon. Chas. Evans, State Mine Inspector, Jefferson City, Mo.:

Dear Sir—Yours of the 6th inst. just received. My understanding is that all shots are "on the solid" when the charge is so placed as to dislodge more coal than is actually undermined. I have been a miner for 35 years. I am at present Mine Inspector for the State of Kansas.

Very respectfully yours,

Bennet Brown.

Columbus, O., July 17, 1895.

Hon. Chas. Evans, State Mine Inspector, Jefferson City, Mo.:

Dear Sir—In reply to yours of the 6th inst., will say that the commonly accepted definition of the term, where my experience extends, is that coal blasted down without first bearing it in is termed "shooting from the solid." Where entries are shorn either on the side or in the center or where the coal face is irregular, that is where one side has been carried ahead, if no bearing in has been done, it is termed shooting from the solid. In answer to your last question, will say that I was born in the Mahoning valley coal fields of this State, that I devoted 20 years of my life to the practice of mining engineering, especially to the surveying of mines, and the last seven and one-half years I have filled the position of Chief Inspector of Mines of Ohio. I am, with great respect,

Yours truly,

R. M. Haseltine.

Glen Roy, Ohio, July 13, 1895.

Hon. Charles Evans, State Mine Inspector, Jefferson City, Mo.:

Dear Sir—I have just returned home after a week's absence, which accounts for the delay in answering your favor of the 6th inst.

I would assuredly regard a shot fired under the conditions stated in your letter as having been fired "off the solid."

I have been connected with mines for 50 years; have mined coal in seven different states; have been State Inspector of Mines in Ohio in all for 10 years. At present my business is a consulting mining engineer.

Yours very truly,

Andrew Roy.

PEORIA, July 19, 1895.

Chas. Evans, Esq., State Inspector Mines, Mo.:

Dear Sir—Your letter of the 6th inst. is to hand and noted. Having been away from home visiting mines in Vermillion county is the reason your letter has not been answered before this time. Replying to your question, what constitutes shooting off the solid, would say that where no under-cutting is done it is called shooting off the solid. Of course, when a straight face of coal is first drilled and a charge of powder or other explosive inserted, such a shot has not the same advantage as a shot such as you describe in your letter: Having a cut ahead, giving it a loose end. But in the mines of this state we call it shooting off the solid. However, I can see room for discussion. My mining experience has been 40 years; present position State Inspector of Mines.

Respectfully,

JAS. A. KEATING.

SCAMMON, KAS., July 11, 1895.

Chas. Evans, Esq., State Mine Inspector Missouri:

Dear Sir—Regarding the question of what constitutes "shooting off the solid," will say it is where the coal is not undermined, or under-cut, if for instance one side of the room is cut ahead in the solid coal, giving it a loose end, and no undermining being done and a shot fired under the above conditions, I consider that shot fired on the solid, and cannot see that it should be disputed.

When any hole is drilled with us away ahead of the cutting we say the hole is too far in the fast, and instruct the shot-firers not to put that shot off as it is unsafe until they do some more cutting, and after that the shot is fired, still it is shooting off the solid.

Take for example a piller 8 feet thick between rooms, and 40 feet between break-throughs, that would be a solid pillar 8 feet thick by 40 feet long, and if you should put a blast in that pillar without doing any mining or undercutting, you would be shooting off the solid. I do not care in what part of the pillar you put the shot you are blasting off the solid, on the other hand, if any one should undermine along the one side of that pillar, say 30 inches deep, after that you could not say it was a solid pillar of 8 feet thick, as it would only be 5½ feet thick of solid coal, so if this should be shot down and the bottom of the hole not to exceed the depth of the undermining, that shot would not be shooting solid coal. I have been mining and connected with mining for about 50 years, have superintended mines for about 30 years and still hold that position with the Central Coal and Coke Co., where I have been for 12 years, and where our coal is almost all mined blasting from the solid, still we do cutting, yet we are blasting off the solid. Hoping this is what information you wished, I am

Yours very truly,

D. MACKIE, Gen'l Supt.

UNIONTOWN, PA., July 29, 1895.

Charles Evans, Esq, State Mine Inspector, Jefferson City, Mo.:

Dear Sir—Your letter of July 6 has just been read on my arrival home, having been absent therefrom for several weeks.

The term "shooting off the solid" in my opinion would mean, that where coal is blasted without any under-cutting being done, it would properly be said that such coal was shot "off" the solid.

Where, however, neither under-cutting or side-cutting has been done, then it would be proper to say such coal was shot "out of" the solid.

The unwritten law among miners, with reference to the blasting of coal, is that the under-cutting and side-cutting of the coal must be at least the same depth as the coal seam is high. That is to say, that if a coal seam is four or six feet high, then the undermining and side-cutting or "shearing" ought to be also four or six feet in depth.

There are a great number of conditions which modify the useful effect of blasting different coal seams, such as the solidity or densety of the coal, the character and number of the fractures, flexures or slips contained in it, the roughness or smoothness of the partings between the coal seam and the overlying or underlying strata.

To blast coal without any prepration whatever, we have all the known resistances to overcome, viz., the fracturing of the coal itself, the adhesion of the roof and bottom and the force of gravity due to the weight of the coal moved.

To blast it after side-cutting, we have only decreased these resistances on one side, and that directly in proportion to the surface cut, leaving therefore the resistances of top, bottom and two sides of the coal seam to be overcome by the shot, and in addition the force of gravity due to the weight of coal moved.

To blast it after it has been properly undermined, and cut in on the side, we have only the adhesive force of the top, and two sides of the coal seam to overcome, and instead of having the force of gravity operating against the force of the gunpowder as in the two former cases, it will now be in its favor.

Therefore, it will be seen at once, that unless there are very favorable circumstances to operate with, that a much better quality of marketable coal can be produced where the coal is mined and cut properly for each acre of coal mined than where it is mined either by being "shot off" or "shot out of the solid."

With reference to the length and character of my experience in mining, I may say that I am 46 years of age, and have been employed in mines since the age of 10 years; so that for 36 years I have been engaged in or about mines in every capacity, from door-boy to superintendent. I have been coal-digger, track-layer, rockman, sinker, fire-boss, mine-boss, superintendent, and now Mine Inspector.

For the last 15 years I have been engaged in an official capacity as fire-boss, mine-boss or superintendent. Two years ago I was appointed for Mine Inspector, after a competitive examination. The appointment is for a period of four years.

Hoping the above may be of service to you in arriving at a solution of the question "what is shooting off the solid," I beg to remain,

Yours most respectfully,

CHAS. CONNOR,

Mine Inspector, 5th Bit. Dist., Pa.

STRIKES.

HENRY COUNTY.

The miners employed at the Hancock Coal Co.'s came out on strike in October. They demanded a pay-day every two weeks, which being denied them, they returned to work four days thereafter on the old terms. About 12 men only effected by the strike.

JACKSON COUNTY.

At the Brush Creek Coal Co.'s mine the miners came out on a strike in November because of a reduction of one-half cent per bushel on the price of mining. The strike lasted nineteen days, when the men accepted the reduction and returned to work. There were 50 men engaged in the strike.

MACON COUNTY.

At the mines of the Little Pittsburgh Coal Co. the miners on the 1st of October, 1894, came out on a strike.

The miners made a demand on the company for an increase of 10 cents per ton for mining. This was not conceded. On the 14th day of November following, the men returned to work upon former terms. About 75 men took part in this strike.

PUTNAM COUNTY.

The Mendota Coal Co. claimed that it was losing money, closed its mine No. 4, at which mine many single men and others who did not live in the company houses were employed. March 25, 1895, the miners employed in mines No. 1 and No. 2 requested the company to give the miners of No. 4 a share in the work of No. 1 and No. 2, which was refused. Thereupon the miners in No. 1 and No. 2 came out on a strike, which lasted until June 1, at which time work was resumed with almost an entire new set of miners, and at a reduction of 10 cents per ton for mining. In addition to which the operator and miners contracted to do that which is in direct violation of the screen law of this State, as no miner was permitted to go to work until the following contract was signed:

MINERS' ANNUAL CONTRACT.

In consideration of being employed as a miner in the coal mine of the Mendota Coal & Mining Co. and of payments hereinafter mentioned, I hereby agree to accept as full payment for all coal mined by me from said mine during the periods mentioned, the prices named below, to wit:

From April 1, 1895, to October 1, 1895, seventy cents (70c) per ton of 2000 lbs. of clean coal.

From October 1, 1895, to April 1, 1896, eighty cents (80c) per ton of 2000 lbs. of clean coal.

I agree to comply with the rules and regulations of the Mendota Coal & Mining Co. during my employment under this contract

I further agree that all coal mined by me shall be screened before being weighed, and that the weight of such screened coal shall be the basis of payments.

I further expressly agree that payment for all coal so mined by me or for work done by me in said mine during any month shall be paid for on the 20th day of the succeeding month, and shall not sooner become due.

Signed in duplicate, this —— day of ——, 1895.

MENDOTA COAL & MINING CO.

The termination of this strike has proved to be the most unsatisfactory to the miners of any strike occurring within the boundaries of the State, as the screen law is considered a just and a good law, and the violation of it caused quite a stir amongst the miners all over the State, and quite a number of letters were mailed to the Governor, requesting him to aid the miners in the enforcement of this law.

The Labor Commissioner requested me, when again visiting the mines of Putnam county, to investigate the cause of this strike, with all other particulars relating thereto. Upon my inspection of the mines of this county, June 28 and 29, 1895, I also made a thorough investigation af the troubles experienced there. The merits and demerits of the question of weighing the coal after it was screened did not interest me, as I regarded the weighing of coal after being screened as unlawful and hurtful to the miners, and there was nothing that I could see or learn that would change my views as long as the present screen law was the law of our State.

After receiving numerous expressions of opinions from the miners, and having had several conversations with the officers of the coal company, I determined to visit and examine the screens at the mines in the state of Iowa, which was but a short distance away, so much having been said by the Mendota Coal Company concerning competition with the Iowa operators, and a simple desire to be placed on equal terms, etc.

Measuring the screens at the mines in Iowa, I found them better for the miner than the screens at the Mendota mines. The space between the bars of the Iowa screen measured only 1¼ inch, while the Mendota screens measured 1¾ inch, and in addition to this some of the Iowa screens were made of one-inch square iron, and those at Mendota of the diamond bar pattern. In both instances the advantage to the miner was with the Iowa screens. But on measuring the width I found the Iowa screens 4 feet wide and rather flat, while the Mendota screens are only 3 feet 7 inches wide and very steep.

Both of these latter conditions are in favor of the miners of the Mendota mines.

I reported these facts to the Labor Commissioner, and further expressed my opinion that a practical miner at Mendota could, with the same size and kind of screen in use in Iowa, earn as much money at 70 cents per ton, screened coal, as he could at 60 cents per ton unscreened, but that there were so many indifferent miners who could not use the pick properly, that because of the extra amount of slack they would make that 60 cents per ton for unscreened coal would be the best rate for them. The figures furnished me for loss in the Iowa mines was from 200 to 250 pounds of fine coal and slack for each ton of coal passed over the screen, and at the Mendota mines the coal company's figures were 390 pounds over the 1¾ inch screen. I discovered that the old miners at Mendota did not want to go to work at any price in violation of the screen law. The law was enacted at the instigation of the miners, and its universal violation in this State would work an injury to many of them.

RANDOLPH COUNTY.

The miners employed at the Caffery-Baker Coal Co. mines have participated in more strikes during the past year than they have in pay-days when there was any money in it. In fact, when a strike was not on for pay or a check weighman, it was at such times as the men were compelled to work to bridge over a period of starvation.

This company pays its employes in script, which will not bring more than half its face value outside of the company store, and at its store supplies are sold at such enormous prices that a miner does well to exchange his labor for his store account. Strikes at these mines are too frequent to enable the Inspector to keep anything like a detailed account of them and attend to his other duties.

The National strike, which commenced April 21, 1894, continued in Bates and Vernon counties until July 15, at which time the miners returned to work on same terms existing at the time they came out.

In Lafayette and Ray counties the strike commenced at same time mentioned above, and continued until the 13th of September, but the miners of the last named counties returned to work at a reduction of 12½ cents per ton for mining.

ACCIDENTS.

The wisdom of good laws for the prevention of accidents, such as we now have on our statute books, has been demonstrated of late years by the gradual diminution of fatalities in our mines.

The Inspector, impressed with the fact that the safety and comfort of the miner constituted the prime object of his appointment, has at all times endeavored to not only see our laws made operative in this matter, but has interested himself in securing such additions and amendments to our laws as would tend to still further security. It is with no small degree of pleasure that he can state, that today our mines are as well provided for in all things necessary for the prevention of accidents as are the mines of any state in the Union.

Great credit is due the operators for the readiness with which they accept and adopt all meritorious appliances and devices which tend to make the life of a miner more safe and endurable.

Accidents are liable to occur in coal mines under the most favorable conditions, wise provisions and careful management, just as they do in all other industries, with the chances however decidedly against the coal mine, owing to the lurking and hidden dangers natural to it. With close observance of our mining laws as they now are, on the part of mine managers, and with practical, intelligent and energetic underground bosses in charge of our mines, we may reasonably expect a still further decrease in the number of accidents. But for the unwise employment of inexperienced and incompetent men, we would have less fatalities to record this year. At times like the present, when the trade is flourishing and miners scarce, there is a temptation to be somewhat indifferent as to the qualification of a man seeking work and representing himself as a miner; but the rule should be to weed out all indifferent miners as soon as practicable.

While there is no law justifying the rule, yet it is a custom and the rule by long usage to assume that an accident occuring to a miner in his room or working place, that he is alone responsible for it, provided, however, the means and appliances are furnished him to properly secure himself. The inference being that a miner should know his business well enough to so care for and work his room as to make it safe. If, for instance, a fall of roof occurs in a room and a miner is killed, about the first thing noticed by managers and miners is the number of props on hand and in use. Should the fact be established that the unfortunate had called for props and they had not been furnished in due time, it would be a case against the operator, but otherwise the miner is supposed to be responsible for such accident. If a fall of roof occurs on a main entry and a miner is injured in passing to or from his work, this is supposed to be chargeable to the operator.

In view of the above, it is amusing to read the coroner's inquests when accidents occur at one of our largest mines. The salaried attorney of the company has a stereotyped question which he never, never fails to put: "This accident happened in the working place of the deceased, and not on the main entry, did it not?" Well knowing that to fix the place of accident to the injured man in his working place, was to relieve the company of damage, overlooking the fact, that it is just as much a criminal act to permit an inexperienced man work a room when he knows not how to protect himself, as it is to injure a man on main entry by neglecting to keep it properly timbered.

The total number of accidents for the year was 28, of which 13 were fatal, and 15 were non-fatal. Out of the above, 24 were miners, 2 were drivers, 1 was an operator, and the remaining one was a stationary engineer. The accidents were due to the following causes: From falling roof, 13; mine cars, 4; windy shots, 3; fall of coal, 2; gas, 2; blasts, 2; machinery, 1, and the careless handling of powder, 1.

From the above, it will be seen that falls of roof continue to lead all other causes of accidents, being 47 per cent of the entire number. In nearly every instance carelessness or the want of proper mining experience has been at fault; this latter cause will be productive of accidents so long as mine managers remain indiffrent to the class of men they allow in their mines, no man unfamiliar with the nature and character of the roof of a coal mine, and the proper time and manner of making same secure, is fit to work in a mine.

Windy shots are chargeable with many accidents and quite often with explosions. The remedy for them is almost wholly within the control of the pit-boss. His selection of miners and a faithful compliance with the law in the matter of employing shot-firers has much to do with the control of this cause of accident.

The selection of men as shot-firers is important, for the reason that they should not only be reliable, but experienced miners, and then held to a strict observance of the rules as to the examination of a shot, the time to fire, where to begin firing, the number of shots to be fired at any one time or place, with special attention given to the interval to be allowed between shots.

The casualties for this year, when considered with reference to the number of tons mined for each life lost and injured person, is gratifying when compared with former experiences. The number of tons of coal mined this year for each life lost was 175,621, as against 125,438 tons the previous year. The number of tons mined for each non-fatal accident was 152,205, as against 82,271 tons for preceding year.

In a comparison made with the state of Illinois, the second state, in the amount of coal produced, we find the number of tons mined for each life lost to be 237,689, as against 175,621 tons in Missouri. It should be remembered, however, in this connection that in Illinois the roof over the coal is much stronger, the coal is higher, or of greater thickness, and of necessity more easily worked, enabling the miners to produce more coal in a given time than can be done in this State. The number of tons minéd in Illinois for each non-fatal accident was but 32,847, while in Missouri there were 152,205 tons mined for each injured person. The number of men employed in Illinois for each life lost was 534, as against 740 men in this State. The number of men employed in Illinois to one man injured was 74, and in this State 591 men were employed for each man injured.

Following will be found a detailed statement of the causes leading to fatal accidents in the several counties where the accidents occurred:

BATES COUNTY.

Thos. Davies and Thos. Ward, coal miners employed by the J. M. Wise Coal Company, were killed January 7, 1895, by a fall of roof. Davies had a wife and two children and was 25 years of age. Ward was married and was 27 years of age. The two men were at work drawing pillars. After the first fall of roof they started back after their tools, they were warned to stay away, but did not heed this warning and were caught by a fall.

Coroner's verdict was "accidental and no blame attached."

John Thomas Moore, a miner 19 years of age, at work in mine No. 17 of the Rich Hill Coal Company, was instantly killed April 8, 1895, by a fall of roof. Deceased was marking off a shot in his room when a piece of slate about 4 feet long, 3½ feet wide and 6 inches thick fell, striking him on the head.

Coroners verdict was "accidental death."

LAFAYETTE COUNTY.

Rosco Autch, interested with his brother in operating mine, was fatally injured September 24, 1894. Deceased was married and 36 years of age. He left wife and one child.

By occupation, deceased was a miner and a stone-mason. At the time of the accident the injured man was at work in the mine, and in attempting to prevent seven cars of coal, which were on the downgrade, from running away, he stepped in front of them, but being unable to manage them, he was thrown down and the cars ran over him, resulting in concussion of the spinal chord, from which he died two days later. No inquest was held.

LINN COUNTY.

Peter Baima, a miner employed by the Marceline Coal Co., was killed June 5, 1895, by a fall of coal. Deceased was 48 years of age, and had a wife and four children in Europe. At the time of the accident the deceased was in the act of taking down his coal, when it fell, crushing him to death before the coal could be removed.

The coroner's jury returned verdict as follows: "We, the jury, find from the evidence that the deceased came to his death by being crushed by a fall of coal in said mine while in his room, and that it was caused by his neglecting to properly prop his coal up."

MACON COUNTY.

Hale Cathron (col.), at work in mine No. 46, Kansas & Texas Coal Co. as a miner, was killed by a fall of roof August 24, 1894.

The deceased was unmarried and about 30 years of age. The trouble in this case is the result of a lack of practical knowledge and caution. The manner in which his room was opened and worked plainly indicated a want of experience.

Coroner's verdict was as follows: "Accidental; caused by his own carlessness."

Wesley Keys (col.), miner employed at mine No. 46 Kansas & Texas Coal Co., was killed August 28, 1894, by a fall of roof. The deceased was 26 years of age, married but had no children.

The Coroner's inquest developed the fact that the deceased had been warned by fellow-miners of the condition of the room, and that he had been advised to put in props. His need of a practical mining experience and his unfitness for the care and work of a room, was the direct result of the accident. Coroner's verdict was as follows: "Accidental, from his own carlessness."

PUTNAM COUNTY.

Thomas Perkins, a miner working for the Mendota Coal Co., was fatally injured July 20, 1894, and died July 25. The deceased was 19 years of age and unmarried. At the time of the accident the deceased was mining under the coal. He had mined his fall of coal and star his wedges and began sledging, but finding the coal did not break, he quit sledging and was engaged in undermining deeper, and while so employed the coal fell. This is a case of carelessness or lack of judgment. No inquest held.

RANDOLPH COUNTY.

Herman Blythe, employed as an engineer at the mine of the Interstate Coal & Mining Co., was killed March 2, 1895, by falling down the air-shaft. He was twenty-three years of age and unmarried. The deceased was running the engine for hoisting, and had the care of the fan. He had just hoisted all but four men out of the mine for dinner, and having noticed that a couple of bolts in the fan had become loose, went to the air-shaft for the purpose of tightening the bolts in the fan. He was alone, and it would appear that while so engaged he lost his balance and fell down the shaft, a distance of 120 feet, killing him instantly. The verdict of the coroner's jury was that he came to his death by accidentally falling down the shaft, and that the accident was not caused by the carelessness or negligence of any person.

Gus. E. Kribbs, coal miner, working for the Caffery-Baker Coal Co., at Mine No. 25, was killed January 9, 1895, by a blast.

The coroner's verdict was as follows: That G. E. Kribbs came to his death by a blast at Mine No. 25, Huntsville, Mo., and that said blast was fired by one Fox White, and death was caused by the criminal carelessness of said Fox White. Upon an investigation of this accident I could not make up my mind that it was criminal carelessness, although it was rank carelessness. This is further evidence of the result of employing for such work incompetent men, and the necessity of complying with the law relative to the employment of shot-firers.

Wm. Robb was killed by a fall of roof December 28, 1894. He was 30 years of age and left wife and one child.

The deceased was not a practical miner, but was operating a very small mine in connection with a partner, who was a miner by occupation. It appears that a shot was fired before dinner, and after returning to work the partner of deceased noticed that the roof had been disturbed, and suggested that he put some props under the slate, to which reply was made, that as soon as could load his car and bring in some props he would secure the roof. Unfortunately the box of coal was not loaded soon enough; the roof fell and deceased was caught under the fall.

The verdict of the coroner's jury was in accordance with the above statement.

RAY COUNTY.

Wm. James, lessee and operator of the Randall mine, was killed June 14, 1895, by being suffocated with gas. Deceased was about 40 years of age, and at the time of the accident, in company with a miner by the name of Brown, an attempt was made to start a fire in the furnace preparatory to mining coal during the day. The atmosphere at the surface being heavy and damp the fire did not burn well, the smoke filling the mine instead of going up the shaft. The men started to the face of the coal after lighting the fire, but had only gone a short disdance when they were overcome with the smoke and white-damp. James groped his way to the shaft and died there, while Brown wandered to the face of the coal and remained there unconscious until rescued the next day. The coroner's jury verdict was in substance as above.

VERNON COUNTY.

Phillip Hannon, a miner working for the Central Coal and Coke Company, was killed instantly February 14, 1895, by a fall of roof. Deceased was 58 years of age, and had a wife and six grown children.

The room in which deceased was working was well propped. He had props at the mouth of his room, and the roof had been uniformly good. He heard the roof crack and started to run back when it caught him. This represents one of those uncertain conditions existing in underground work that is not always recognizable by the most experienced and cautious. The coroner's verdict was accidental death and no one to blame.

REPORTS OF INSPECTION.

ADAIR COUNTY.

Production, 24,288 tons.

KIRKSVILLE POSTOFFICE.

All the mines operating in the surroundings of Kirksville are located ten miles northwest, on Hazel creek, and east of the Chariton river. The coal is four feet thick and of extra good quality. It is worked on the room and pillar plan and overlaid with a good roof. This is the same seam as that so extensively mined throughout the north part of the State and in Southern Iowa. The product of the mines is hauled in wagons and consumed at Kirksville and vicinity.

W. C. Ditimers operates the Inbody mine, employing from 3 to 5 men during the fall and winter to supply local demand.

John Madden operates a drift mine on Hazel creek, giving employment to 4 or 5 men in the fall and winter to supply the home demand. The coal is taken away in wagons and consumed in the surrounding country.

Pat McCabe has been operating the Sanco mine during the past year. The shaft is 25 feet deep; horse-power. This is the same seam as that of other mines in this locality. From 3 to 5 men were employed during the winter to furnish coal for local demand.

D. C. Scott, shaft 40 feet deep; horse-power. This is the most extensive mine in this locality. From 15 to 20 men are employed at this mine through the winter season. The coal is taken away from the mine in wagons and consumed at Kirksville. I visited the mine on the 9th of May, but as the same was not in operation at this date, no inspection was made. Pay for mining, 75 cents per ton.

NOVINGER POSTOFFICE.

O. K. Coal Company.—Mine located one mile west of Novinger, and connected with the Q., O. & K. C. R. R. Shaft 45 feet deep; equipped with very fair machinery for hoisting. This is a new mine opened up in October, 1894, and at date of last inspection May, 1, a considerable opening had been made, but owing to the small demand for coal, the output of the mine was small. Ventilation is furnished by a 10-foot fan, which sets in the upcast air-way at the shaft landing, exhausting through an air-chamber partitioned off one end of hoisting shaft. Coal 44 inches thick and worked on the room and pillar, double entry plan, and mined by shooting off the solid. The roof is a hard black shale, stands well in rooms with very few props. The mine is dry and practically opened. Coal shipped over the Q., O. & K. C. R. R. and is consumed at local towns along the line of the railroad.

STAHL CITY POSTOFFICE.

Pennsylvania Coal Company.—H. C. McCahan, manager; John Dawson, superintendent. This Company is operating two mines at Stahl City, and have shipping connections with the Q., O. & K. C. railway. Both mines are drift openings, and ventilation is furnished by the aid of furnaces at each mine. Two inspections were made during the year, namely, September 28th and May 1st. Drift No. 1 is the most extensive mine, and the best ventilated. On my first inspection I observed that a new air-shaft had been sunk, and the furnace had been removed and built larger. I also found the air split into two currents—one current was traveling around the north part, and the other current going around the south, and thence to the furnace. The method of splitting air in mines is very practical, and will always meet with my hearty approval, as the volume of air will be largely increased where this method is put in practice. On second inspection, I found the ventilation again up to the requirments of the law, with plenty of fresh air circulating around all the workings. I also observed that the method of mining had been changed from the room and pillar to the long-wall plan, which I consider the best plan for this seam of coal, and if practically operated, will prove successful. The coal varies from 3 to 4 feet in thickness; it is underlaid with fire-clay mining and overlaid with a cap-rock, which makes a good roof. About six inches of black slate comes down with the coal, which is used to build pack-walls along the roadways to support the roof. This is the same seam as that so extensively mined in Putnam county and in Southern Iowa. The coal is of very fine quality, and finds a market wherever the same has been once used. The mine is dry, with good roadways, and in very fair condition. There were 70 and 25 men at work, respectively, on dates of inspection.

Drift No. 2 is located about 300 yards from No. 1, across a ravine, and is driven into another hill. This mine is worked on the room and pillar plan. Other conditions, such as thickness of coal and mode of ventilation, are the same as that of drift No. 1, as both mines are working the same coal seam. The same price is paid for mining, which is $1 per ton in winter and 80 cents in summer, for clean coal. The product of the mines is consumed by the railroad company and at local towns along the line of the road. A trial shaft was sunk at this place by this company last winter, and 30 inches of coal was struck at a depth of 60 feet. The machinery and boiler is already on the ground to open out another mine, and as soon as the coal trade revives work will commence on the new shaft. Drift No. 2 was closed down at date of my second visit, owing to the small demand for coal, hence no inspection was made on this visit. There were 40 men at work in this mine at date of first inspection.

AUDRAIN COUNTY.

Production 40,919 tons.

Audrain county has shown a small decrease in the output of coal during the past year, as compared with the previous year. The report of 1894 shows the output to have been 43,910 tons, valued at $64,724, while in this report it is given at 40,919 tons, thus showing a decrease of 2991 tons in the production, and a decrease in value of $9939. The county is all underlaid by the coal measure formation, and mining is prosecuted in nearly every township in the county; but only at the mines of Farber, Martinsburg and Vandalia, where they have shipping facilities, is the product shipped out of the county. The mines in other sections of the county are only operated for the local demand. Following is a description of each mine as found at date of inspection:

FARBER POSTOFFICE.

Farber Coal Company.—W. Bethel, superintendent; mine located at Farber; shaft 104 feet deep; hoisting by steam-power; ventilation is supplied by a furnace which was giving good results at dates of inspection. Coal runs from 24 to 30 inches in thickness, and is worked on the long-wall-plan. It is underlaid by fire-clay mining, and has a strong black slate for roof which stands well for this method of mining, and very few props are used or required in the mine. This is the same seam as that which is worked in other parts of this county, and the coal is of very good quality. A connection has been made with the Chicago & Alton railroad, and the coal is shipped over that road and consumed at Mexico and local towns along the line of the road. The mine is practically operated and is kept in good condition. Ropes, cages, safty-catches and gates in good order. From 20 to 30 men employed in winter.

LADDONIA POSTOFFICE.

Owen Lynch.—Mine located two miles south of Laddonia; shaft 35 feet deep; hoisting by horse-power. A new shaft was sunk last summer and the old one is used now for an air-shaft. Coal 32 inches thick and worked on the long-wall plan. The mine is operated to supply the local demand; employing from two to four men.

C. P. Eastman, mine located southeast of Laddonia, shaft 32 feet deep; horse-power; thickness of coal and mode of mining, the same as that of other mines in this county. Mine only operated during winter season, and the coal is consumed in the vicinity. Three men employed.

E. D. Weber operates a mine north of Laddonia, shaft 42 feet deep; hoisting by horse-power; coal 26 inches thick and worked on the longwall plan, mine only operated in fall and winter, giving employment to three or four men to supply home trade.

The Robinson Bros. opened a new mine north of Laddonia last winter, but the coal proved soft, and the same was abandon before thoroughly testing it.

Laddonia Coal Co.—C. Tarpin, superintendent; mine located at Laddonia; shaft 45 feet deep; horse-power; coal 26 inches thick and worked on the long-wall plan; coal consumed at Laddonia and the surrounding country. From six to twelve men employed in fall and winter to supply local demand.

MARTINSBURG POSTOFFICE.

Samuel McGuire, mine located four miles south of Martinsburg; shaft 16 feet deep; horse-power; coal 4½ feet thick and worked on the room and pillar plan. This is a local deposit of coal which extends under a large space of country, and could be mined profitable if shipping facilities were more available. Mine only operated for local demand, but considerable coal is hauled in wagons and shipped over the Wabash railroad, and consumed at local towns along the line. From three to ten men employed.

The McCowen mine, is located in the same neighborhood, operating the same deposit of coal. Mine only worked in the fall and winter to supply home demand.

W. T. Taylor and Company.—Mine located ½ mile east of Martinsburg, and connected with the Wabash R. R., shaft 107 feet deep; equipped with very good machinery for hoisting. Ventilation is produced by a furnace which was giving good results at date of my inspection, December 6th. Coal 30 inches thick, and worked on the long-wall plan; paying for mining 92 cents per ton, in winter, and 86 in summer for clean coal. Another visit was made to this mine April 2d, but as the mine was not running, nor any steam up, no inspection could be made. Coal consumed at local towns along the road. About 35 men are employed.

MEXICO POSTOFFICE.

The Davis mine is located 1½ mile east of Mexico. Shaft 42 feet deep; horse-power. This is a pocket of coal which was discovered about two years ago by the present owner, when a shaft was sunk, and 4½ feet of coal was struck at the above mentioned depth. The coal is of good quality, and finds a ready market at home, but the mine has been badly managed and neglected, and was condemned for the want of proper ventilation on a recent inspection. There is every indication that there is a large body of coal lying south of the present shaft, and the mine can be operated very profitable under good management. The coal is consumed at Mexico and vicinity.

A. M. Harrisson operates a mine 1 mile east of Mexico; shaft 56 feet deep; horse-power. This is both a coal and clay mine—the coal is consumed in the immediate vicinity, and the clay is used to manufacture brick. An average of 6 men employed.

MT. CARMEL POSTOFFICE.

Omer Detienne operates a mine in the neighborhood of Mt. Carmel; shaft 42 feet deep; horse-power; coal 30 inches thick, and worked on the long-wall plan, the output being consumed in the vicinity.

VANDALIA POSTOFFICE.

Vandalia Coal Company.—Wm. Bevan, president. This company ownes and is operating two mines located at Vandalia, both of which have shipping connection with the Chicago & Alton railroad. One mine is located just west of city limits; shaft 65 feet deep; hoisting by steam-power; ventilation is furnished by a furnace, and the mine is well ventilated; coal 28 inches thick and worked on the long-wall plan, with good, black slate for roof. The coal is underlaid with good fire-clay, which is taken out at another part of the mine. The coal which is taken out of this mine, is consumed here for the manufacture of the clay into brick and other articles. This plant burned down during the winter, causing a great loss to the company, but it was rebuilt at once, and supplied with all the modern improvements. I. Williams, foreman.

The other mine is located 1 mile west of Vandalia; shaft 75 feet deep; equipped with good machinery for hoisting; ventilation is furnished by a fan, which was giving good results at date of inspections, Dec. 3, 1894, April 3, 1895. The coal seam is 28 inches in thickness, and worked on the long-wall plan, overlaid with a good slate roof, and fire-clay for mining, rendering it well adapted to the long-wall system of mining; ropes, cages, safety-catches and gates in good condition. The mine is dry, roadways high, clean and kept in good condition. Ten railroad chutes are being built at the mine to coal engines, and the output is mostly consumed by the railroad company. Employment given to about 50 men; price paid for mining, 86 cents per ton.

BARTON COUNTY.

Production, 77,286 tons.

Barton county is the tenth coal-producing county of the State, and is one of the few counties which show an increase in the output of coal during the past year. Her principal mines are located at Minden and Vernon stations, although coal is being mined in nearly every township in the county, but only in a small way, to supply home trade. The county is nearly all underlaid with coal, but owing to the shallowness of the covering, underground mining is impractical in many localities, and a large amount of the coal is obtained by stripping. The K. C., Ft. S. & M. railway and the Missouri Pacific railway pass through the center of the coal field of this county, which gives good shipping facilities for the product. Following is a description of the more important mines of the county.

LIBERAL POSTOFFICE.

Liberal Coal Co.—John Todd, superintendent. Mine located south of Liberal; drift opening; coal 24 inches in thickness, and worked on the room and pillar plan. On my second visit to the mine I found it abandoned, and the company making preparations to open a new mine in an adjoining hill, with the intention of having it ready for the winter trade.

Jacob Betz operates a mine at Liberal; drift opening; coal 26 inches in thickness, and worked on the room and pillar plan; coal shipped over the K. C., Ft. S. & M. R. R., and consumed at local towns along the line of the road; an average of 5 men employed.

Lowery Bros. operate a mine on the Boulware land; drift opening; mine only operated in fall and winter, and the output consumed in the surrounding country.

M. H. Wilhelm operates the Cameron mine; coal hauled in wagons and shipped over the K. C., Ft. S. & M. R. R., and consumed in towns along the line.

Joe Franers operates a drift mine in the surroundings of Liberal to supply the local demand.

Harry Footes operates a mine near Liberal; drift opening, and the output consumed in the immediate vicinity. There are several others mining coal in the vicinity of Liberal, and the names and output of each will be found in the statistical table of this county.

MINDEN POSTOFFICE.

State Line shaft.—S. H. Lanyon, owner. This mine was formerly known as the Morgan shaft. It is located one mile southwest of Minden and connected with the K. C., Ft. S. & M. R. R. Shaft 45 feet deep; hoisting by steam-power. First inspection was made October 13, and deficiency in the ventilation was found on the east entries, owing mostly to defective doors. A new air-shaft had been sunk at the face of the north entry, and a small furnace built, thus doing away with the use of the fan, which formerly furnished the ventilation in this mine, and the furnace was giving better results under the existing conditions. Another inspection was made April 15, and the ventilation was found better than on my former visit. On the north entry wooden doors had been set to replace those made of canvass, which turned a larger volume of air to the east entries. The mine is operated at present by the Minered Bros., who have leased it from Mr. Lanyon. They are practical miners and are making great improvements in the mine. Coal 3 feet thick and worked on the double entry room and pillar plan, employing from 20 to 30 men, paying for mining 50 and 60 cents per ton, summer and winter, respectively.

The Sunshine shaft, is located just west of Minden, and connected with the K. C., Ft. S. & M. R. R. Shaft 45 feet deep; steam-power. This mine was formerly operated by the Wear Coal Co. of Kansas, and the same company still owns the mine, but have leased it out to a party of miners to take out the pillars and stumps. When that is done, the mine will be abandoned.

VERNON POSTOFFICE.

Wear Coal Company—A. B. Kirkwood, superintendent; Wm. McKinley, foreman. Mine located at Vernon station, 3 miles north of Minden, and connected with the K. C., Ft. S. & M. R. R. This is a mining village, situated near the west line of Barton county, it having sprung into existence about two years ago. The company, after having

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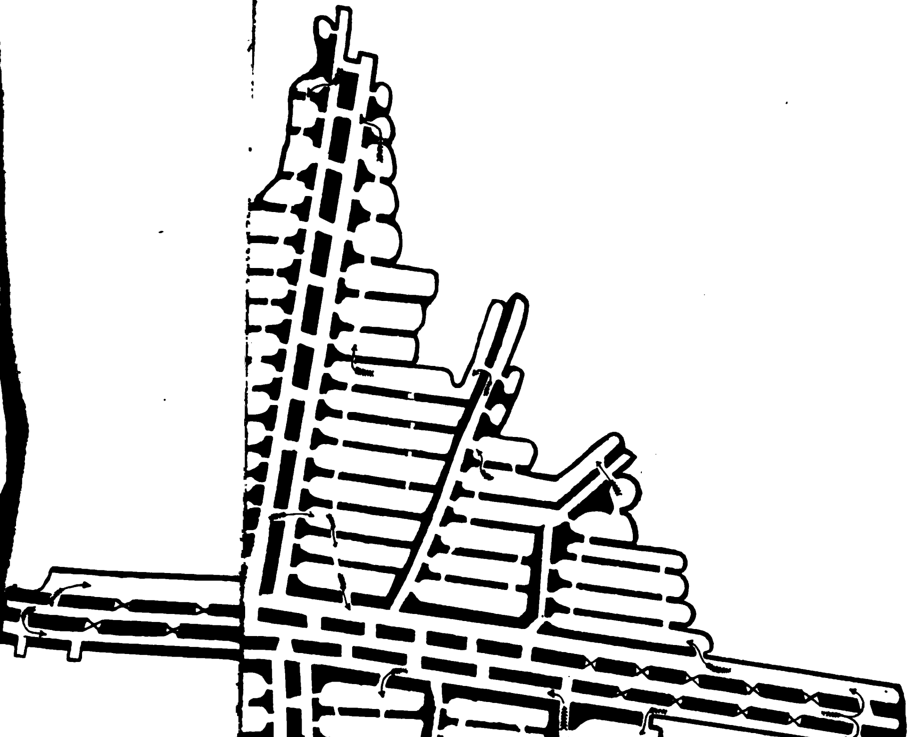

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ASTOR, LENOX AND
TILDEN FOUNDATIONS.

purchased a large body of coal land in this vicinity, commenced mining on an extensive scale. The company own a store and a large boarding-house and about 75 houses in this village, 125 miners find employment at the mine during the winter months. The shaft is 45 feet deep, and operated by steam-power; ventilation is produced by a 10-foot fan, and the mine is well ventilated. Two inspections were made during the year. The first, on October 13, 1894, when the ventilation was found above the requirements of the law with all other conditions of the mine acceptable. The air is split at the bottom of the downcast into two currents, one current is made to pass around the workings on the east side, while the other current was ventilating the west part of the mine, and thence returning to the fan.

Second inspection was made April 16, when the fan was making 70 revolutions per minute and passing 12,320 cubic feet of air around the workings in same time. This volume, as on my former inspection, was circulating around the mine in two currents and was forced to the face of all the workings. All air-courses were found wide, high and clean, and the doors all made of double lumber, properly placed and well hung, with trappers employed at all the most important to open and shut the same after the passage of trips. A stairway was erected in the escape-shaft for the passage of men in and out of the mine,no one being allowed to ride on the cages. Coal varies from 2½ to 3 feet in thickness and is worked on the double-entry room and pillar plan; 50 cents per ton is paid for mining unscreened coal. Shot-firers are employed to fire all shots after the miners and other persons have retired from the mine. There were 120 and 25 men at work, respectively, on dates of my visits. The product is shipped to Kansas City, and points west and northwest.

There are other parties mining coal by stripping and drifting in the vicinity of Minden, and the name of each and the output of their mines, with other information, will be found in the statistical table of this county.

BATES COUNTY.

Production, 252,231 tons.

This county in 1891 ranked first in production, with an output of 726,273 tons. For 1892 and 1893 it ranked second, in 1894 it was fourth, and this year it ranks third, with an average for the past five years of 511,444 tons. For the coming year far better results may be expected from Bates county, as new and extensive mines have been opened up.

AMORET POSTOFFICE.

Black Diamond mine, operated by C. W. Feild; mine located about half way between Amoret and Worland. Slope opening; coal 3½ feet thick, and worked on the room and pillar plan. The coal is hauled from the mine in wagons for over half a mile and loaded on cars at switch formerly used by the Blue Lick Coal Company, and then shipped over the P., K. C. & Ft. Smith R. R. to Kansas City and points west. An average of 9 men employed and 65 cents per ton paid for mining clean coal.

M. Roland operates a strip-pit on Russell Brayton's land, hauling the coal in wagons to the railroad, over which it is shipped to points west.

J. Riddle is working a strip-pit on the railroad company's land, southwest of Amoret, to supply local demand. While the country in the vicinity of Amoret, is underlaid by a 3-foot seam of coal, yet the shallowness of the covering and the irregularity of the coal makes any system of underground mining impractical, stripping coal has proved unprofitable in this locality at the present prices, and the largest portion of the black diamond will remain in the ground until a greater demand and a higher price can be obtained for same.

FOSTER POSTOFFICE.

The coal seam which is mined in the vicinity of Foster, is the same as that worked at Amoret and Worland, and so extensively mined throughout Eastern Kansas. It is about 3 feet in thickness and of very good quality. The covering over the coal being shallow makes underground mining impracticable, and the mode of mining prosecuted here is done by first removing the overlying surface, which is called stripping, and then taking out the coal. It is then hauled in wagons to the railroad switches and shipped to market over the Missouri Pacific railroad to Kansas City and other points.

There are from 20 to 25 strip-pits in operation during the fall and winter in the neighborhood of Foster, and the name and output of every mine, with other information, will be found in the statistical table of this county.

Kansas Line Coal Co.—Henry Deller, superintendent. Mine located 1½ miles west of Foster. Slope opening and coal taken out by horse-power. Ventilation is produced by a furnace, which was giving good results at date of inspection. This is a new mine opened out last fall on what is known as the celebrated Darby Hill coal. The main entry runs east under a very large hill, and is gaining more cover every foot that it is advanced. The mine was originally started on the room and pillar method, but lately changed to the long-wall plan, and at date of my inspection was taking the first squeeze. The plan is in its experimental stage here as yet, but will prove successful if practically operated. The coal is underlaid with good fire-clay mining and is overlaid with soapstone, which is not a very desirable roof for long-wall work, as every break cuts the roof with the solid and falls along the faces. Coal about 3 feet thick, of very fine quality. The mine is located about one-fourth of a mile from the railroad, and the coal is hauled in wagons for the present and loaded on cars at Rucker switch, but a tram-road will be built to the mine in the near future. The product is shipped over the Missouri Pacific to points north and west.

Geo. Young operates a mine north of the above named company, and the two are almost connected. Formerly this mine was entered through a slope driven from the bottom of a strip-pit, but this summer a shaft was sunk through which the product is now hoisted by horse power. Coal 3 feet thick and worked on room and pillar plan. The output is hauled in wagons and loaded on cars at Rucker switch and shipped to market over the Missouri Pacific R. R.

A. Skilman, Thos. Manchester, Borin & Graham, and Wm. Mace operate slope mines in the vicinity of Foster, on the same seam of coal and under the same conditions as that of the other mines in this locality. The output from these mines is consumed in the immediate vicinity.

HUME POSTOFFICE.

Thos. Manchester & Son.—Mine located at Hume, and connected with the P., K. C. & Ft. Smith R. R. Shaft 70 feet deep; horse-power. Coal 30 inches in thickness and worked on the room and pillar plan, paying 80 cents per ton for mining, and employing 5 men.

The following named parties operate strip-pits north of Hume, and haul the coal in wagons to the railroad and ship it to Kansas City and points west: E. H. Thurman, Deering & Johnson, Horton & Davies, and W. S. Shaw. Each of these parties are operating the same seam of coal, and the output will be found in the statistical table of this county.

RICH HILL POSTOFFICE.

Rich Hill is the great coal center of the Southwest. It is located near the southwest line of Bates county, and is surrounded by large and extensive mines for a radius of 5 miles. The coal belt that runs through this county is almost inexhaustible, and while millions of tons of coal have been taken out, and several large mines have been worked out and abandoned, yet new mines have been opened out within the radius above mentioned, and are good producers.

The thickness of the coal around Rich Hill will vary from 3½ to 6 feet, and the price for mining at present is 40 cents per ton for unscreened coal. The mines are worked on the double-entry room and pillar plan, and the coal mined by blasting off the solid.

Three inspections have been made of all the mines in the vicinity of Rich Hill during the past fiscal year, and following is a description of every mine and a statement as to their location and condition as found at dates of inspection.

Bruce and Maudville, mine located 4 miles north of Rich Hill. Slope opening from the bottom of a strip-pit; ventilation is produced by a small furnace which is inadequate to furnish the required amount of air in the mine. I inspected the mine October 10 and found considerable improvement had been made since my former inspection, airways had been cleaned and enlarged, and doors had been repaired and reset, and a sufficient volume of air was found passing to fill the requirements of the law; but only 16 men were at work at this date. March 28 I made another inspection of the mine; I found 46 men at work at this date, and only 4100 cubic feet of air passing; measurement was taken in two places on the main air-course, the air-current was deflected from proper channels, owing to a defective door and open break-troughs or cross-cuts, and the small amount of air traveling was foggy, sluggish and unfit to inhale. The company was notified of the condition of the mine, and instructed to remedy the evil at once, as will be seen by the following letter:

JEFFERSON CITY, March 27, 1895.

Messrs. Bruce & Maudville, Rich Hill, Mo.:

Gentlemen—I made an inspection of your mine yesterday, and found the ventilation of the same defective. The ventilative appliances are inadequate to the demands made by the capacity of your mine. The furnace smoke-stack is too small, being a circular pipe of a diameter of only 18 inches, with an area of one and three-quarters (1¾) feet.

To cause to pass 4500 cubic feet of air through such a small area each minute would result in the air being made to travel at a speed of 28 miles per hour, requiring a propelling force of four pounds to the square inch, and your present furnace cannot furnish such force. Measurement of the air was made at two points, and the largest volume found measured, 4100 cubic feet at a point on the return near the furnace. Your furnace give every evidence of being well attended to and its capacity kept up to its limits. Yet the air was not only found lacking in quantity, but that which was furnished, was foggy and unfit for the men to inhale.

The present location and arrangement of your furnace and size of smoke-stack is condemned, and you are hereby respectfully instructed to sink a large and more commodious escape-shaft in a more suitable place, and to equip the same with ventilative appliances commensurate with the demands made by a mine of the size and capacity of yours. Sixty days from April 1, 1895, is the limit of time which I have fixed upon for the change herein ordered to be made and completed.

There is no fault to be found with the condition and management of the mine other than mentioned, and the placing of a wooden door at the mouth of the third west entry to take the place of a canvass door now badly torn. You will please observe these instructions promptly, and oblige,

Yours truly,
CHAS. EVANS,
State Mine Insp.

I made another visit to the mine on the 15th of June, but as the same was not running and no men at work, no inspection was made. Preparations were being made to sink hoisting-shaft at the face of the workings and equip it with machinery. A fan will be set on top of the shaft to exhaust from the mine, and the present opening will be used for the inlet of the air and an escape-way for the men, which will doubtless make matters satisfactory to all concerned. As this mine is working in close proximity to the old No. 6 Gulf, the company has been instructed to keep bore-holes 20 feet ahead in all directions, and in all places driven toward the said mine. Coal 4 feet thick and worked on the double-entry room and pillar plan. The output is hauled on a tram-road for one-fourth of a mile to a switch having connections with the K. C., Ft. S. & M. R. R., over which it is shipped to Kansas City and points north and west. Forty (40) cents per ton is paid for mining unscreened coal.

Martin & Gee.—Wm. Davies, foreman. Mine located northeast of Rich Hill, near the city limits, and has shipping connection with the Missouri Pacific railroad; mine entered by a slope, and the coal is brought out by mules; ventilation is furnished by a furnace, which is fully sufficient to properly ventilate the mine, if the same is attended to. I visited the mine on my tour of inspection through this county in October, but as the same was idle and no men at work, no inspection was made. December 17th I visited the mine again and made a thorough inspection, and found a deficiency in the ventilation in all parts of it, in fact there was no air at all traveling where the men were at work. There was not a door in the mine to conduct the air around the face of the workings; all the cross cuts were left open, and no fire in the furnace. I condemned the mine at this date, and ordered it closed until it was put in proper condition, and ventilated as required by the mining law.

On the 24th day of January, 1895, I made another inspection and found a great improvement in the ventilative current since my former inspection. New doors had been set, air-ways had been cleaned, and all the back cross-cuts had been stopped up and plenty of fresh air found traveling around the face of all the workings. I examined the cause of an explosion which occurred in this mine on the 2d day of this month, when 5 or 6 men were seriously burned. I found in one room just turned off the entry that two shots had been fired together, one on each side of the room, and these shots, in my opinion, were the cause of the explosion by what is termed a windy shot. These two holes had been drilled about 6 feet deep into solid coal without any cutting or loose end of any kind, and when the heavy charges of powder that were put in these two holes exploded, their force was expended at the mouth of the holes, leaving the coal and about 4 feet of the holes still standing. The powder thus exploded, not expending its strength in the loosing of the coal, was converted into carbonic oxide gas, and as several shots had been fired in close proximity to this room, the large volumes of flames which were thrown off from these two shots fired this gas and the smoke, thus causing the explosion. I cannot too strongly condemn the ignorance of any one who pretends to be a miner that would fire shots in such an impractical way, and by so doing endangering the lives of his fellow miners. This mine was visited again on the 29th of March and on the 16th of June and found in good condition, with the ventilation above the requirements of the law.

Coal from 4 to 6 feet in thickness, and worked on the double-entry room and pillar plan. There were 30 men employed, and 40 cents per ton were paid for mining. The output is shipped over Mo. Pac. R. R. to points north and west.

Peter Pearson operates a strip mine near Rich Hill. Coal hauled to railroad and shipped to market over Missouri Pacific railroad.

Rich Hill Coal & Mining Co.—Maj. R. M. McDowell, general manager, and W. B. Williams, superintendent. This is the largest coal company in the State. The output of its mines during the past year exceeds that of any other one company. Its mines are located in the vicinity of Rich Hill, in Bates and Vernon counties, with shipping connections with the Missouri Pacific railroad.

Mine No. 15.—Alex McKinnon, foreman. Mine located 2 miles south of Rich Hill and connected with the Mo. P. R. R. by a switch; shaft 106 feet deep and equipped with first-class machinery for hoisting and ventilating the mine.

This is undoubtedly the best equipped, the largest producer and the most practically operated mine in the State. First inspection was made October 11, and the mine was found in first-class condition. Another over-cast had been erected across the south entry, which added greatly to the volume of air that was circulated around that part of the mine. Formerly the air was conducted to the first west entry, and thence to the south entry from which place it would return to the fan, but since the erection of the over-cast, the air travels first to the face of the south entry where it splits to the east and west, thus making three separate and distinct currents of air on the south side of the mine, and two separate and distinct currents on the north side. Measurement of the air was taken at the foot of the upcast, and 55,320 cubic feet found passing. I visited the mine again on the 29th of March, but as it was not running at this date and no men at work, no inspection was made. June 14th I made another careful inspection of this mine; the fan was making 75 revolutions per minute, and was forcing 57,915 cubic feet of air around the workings in same time; this volume was circulating around the workings in 5 separate splits, making this one of the best ventilated mines in this or any other state. All of the pit-bottom had been retimbered, the center props had been taken out and replaced by double timber the entire length of the bottom switches, which not only adds to the appearance of the mine, but renders it much more convenient for handling coal. Coal from 3½ to 5 feet in thickness, and worked on the double-entry room and pillar plan. Shot-firers are employed by the company to fire all shots after the miners have retired from the mine. Gas men are also employed to inspect the workings every morning, and examine all the places and report that everything is safe before the miners are permitted to enter the mine. In fact, every precaution is taken by this company to avoid accidents. The roof is of the slate variety and is easily secured with timber. Mine dry, with good high roadways and in excellent condition.

Mine No. 18—I. B. Watson, foreman. Mine located one mile south of Rich Hill, and connected with the Mo. P. R. R. by a switch. This is a slope opening started from the bottom of a strip-pit and the output brought out by steam-power. The mine is supplied with a 10-foot fan and is well ventilated. The coal runs very irregular and varies from 3 to 5 feet in thickness. From thirty to forty men employed, and the product is shipped over the Mo. P. R. R. to Kansas City and points west.

Mine No. 19—I. Price, foreman. Mine located 5 miles north of Rich Hill; shaft 105 feet deep; operated with machinery for hoisting. This is a new mine sunk and opened out last spring, the pit-head and engine-house are all new and well constructed. The engine was moved from old mine No. 2, and reset at this mine; cages and ropes are new, as well as all other safty appliances around the mine. The ventilation is furnished at present by a small fan, which sets at the upcast air-way at the shaft landing, exhausting through an air-chamber partitioned off one end of main shaft, but an escape-shaft will be sunk at once and a larger fan will be used. Coal about 4 feet thick and worked on the double-entry room and pillar plan. All the work was confined to driving entries at date of my visit, June 15.

Contract mine, operated by D. Rees, located 4 miles north of Rich Hill. This mine is a slope opening, and the coal is brought out by steam-power; ventilation is produced by a 10-foot fan, which was giving good results at dates of inspection. This mine has been opened to work out pillars and stumps, which was left and lost at old Gulf No. 4. It is surrounded by old works and strip-pits, and makes considerable water. Coal 4 feet thick and worked on the room and pillar plan. The pay is at the rate of 40 cents per ton for mining unscreened coal. Employment is given to from 30 to 40 men. The coal is shipped to market over the Mo. P. railroad.

Contract mine, operated by I. M. Wise, located about 2 miles northeast of Rich Hill; mine entered by a slope from the bottom of a strip-pit, and the coal is brought to the surface by steam power. All the work here has been confined in the last 12 months to drawing back pillars, and before this report reaches the hands of its readers, the mine will be worked out and abandoned. The mine is ventilated by a 10-foot fan, which was giving good results at dates of inspection. Coal from 4 to 5 feet thick and worked on the room and pillar plan, employing from 30 to 40 miners. Coal shipped over Mo. P. railroad.

Wm. Sullivan is operating a drift mine and a strip-pit one mile south of Rich Hill. The drift mine is worked on the room and pillar plan. The coal being very soft it is worked by cutting, undermining and wedge it down, what is termed pick-work, it is about 4 feet in thickness and is overlaid with very good slate roof. An average of 10 men are employed during the winter, and the product shipped over the Missouri Pacific R. R.

The following named parties are operating strip-pits in the neighborhood of Rich Hill, and haul their coal in wagons to the railroad switch, loaded on cars and shipped over the Missouri Pacific railroad to Kansas City and other points: J. B. Williams' strip-pit north of Rich Hill; McMahan & Page, pit north-east; Frank Martin's, north; R. E. Allen, southwest of Rich Hill and east of the Sullivan mine; Cheney & Beaty, south; H. P. Rolinson, north of Rich Hill and east of Bruce & Maudville mine; J. J. March operates a strip-pit north of the hill near old Shole town; Barron Bros. opened a strip-pit last fall two miles north of Rich Hill, and sold the coal at the mine to supply the home demand. The output of each mine and other information in relation to the above will be found in the statistical table of this county.

ROCKVILLE POSTOFFICE.

John A. Ford operates a strip-pit northwest of Rockville. Coal from 5 to 6 feet in thickness and consumed in the surrounding country.

D. D. Peeler operates a strip mine in the same locality as the Ford mine. Coal same, and consumed in surrounding neighborhood. There is a very large deposit of coal underlying a great portion of the country north of Rockville, but owing to the shallowness of the covering over the coal, underground mining is impracticable here, and the only method of obtaining the coal is by stripping off the dirt and slate. These mines being located away from shipping facilities, the output is limited and confined to the local consumption.

WORLAND POSTOFFICE.

The coal in the vicinity of Worland is the same seam as that worked at Amoret and Foster. It is about 3 feet in thickness, but runs irregular and faulty. There is a very large amount of coal mined in this vicinity, but most of it at strip-pits. The covering over the coal is so shallow as to make underground mining impracticable as well as unprofitable. There are a great number of strip-pits in the vicinity of Worland. Some of them are large producers. The names of all operators and output of each mine will be found in the statistical table of this county.

Hudson & Co. operate near Worland. Drift opening. Coal 34 inches thick and worked on the room and pillar plan. Mine only operated in fall and winter. Coal carried to market over Missouri Pacific railroad. About 6 men are employed.

Eynon & Stevens operate a mine near Worland. Drift opening from the bottom of a strip-pit. Thickness of the coal and other conditions are the same as that of other mines in this locality.

F. A Ramey & Co. operate a mine one mile east of Warland, near Ward's switch. Shaft 40 feet deep. Horse-power. Coal 3 feet thick, and worked on the room and pillar plan. Mine ventilated by a furnace giving good results. Coal is hauled from the mine in wagons and loaded on cars at Ward's switch, and is taken to market over the Missouri Pacific railroad. From 10 to 15 men are employed.

BOONE COUNTY.

Production, 21,310 tons.

The coal production of Boone county has shown a slight increase during the past year as compared with the preceding one. Thirteen mines were in operation during the past year, producing in the aggregate 21,310 tons, which was sold at the mines for $30,078. Mining is being prosecuted in various parts of the county, but only in a limited way to supply local trade, the Columbia Coal Mining Company being the only mine having shipping facilities. The thickness of the seam mined in this county will average 42 inches and is the same vein as that so extensively worked in Macon and Randolph counties. Following is a description of the mines:

COLUMBIA POSTOFFICE.

Blackfoot Coal Company.—T. Morgan, superintendent. Mine located 5 miles north of Columbia, on the gravel road; shaft 120 feet deep; horse-power; ventilation is supplied by a furnace, which was giving good results at dates of inspections, December 7, 1894 and April 2, 1895. Coal 3 feet 8 inches thick, worked on the room and pillar plan, and overlaid with good slate roof. The coal is of very good quality, and is the same seam as that so extensively worked in Macon and Randolph counties. It is hauled in wagons from the mine and consumed at Columbia. The capacity of the mine is limited to the local demand. It could be operated very extensively, if it had shipping connection with some railroad to take the product to market. From 8 to 14 men are employed in fall and winter.

J. W. Carter, mine located 3 miles north of Columbia; shaft 40 feet deep, horse-power; mine ventilated by a small furnace, and was giving satisfaction at date of my visit. Coal 3½ feet thick, and worked on the room and pillar plan. Coal hauled in wagon to Columbia, where it is consumed. Ten men employed.

Columbia Coal Co.—Thos. Rees, Supt. Mine located at Henry station, and connected with the Columbia branch of the Wabash R. R. Shaft 112 feet deep; equipped with machinery for hoisting. Ventilation is produced by a fire-basket, located at the foot of the air-shaft. On a former inspection I found a very crude appliance, totally inadequate to ventilate the mine as required by law, and I instructed the company to erect a furnace. During the past year all the workings on the east side of the shaft have been abandoned and new works opened out on the west side, and as the new works are in close proximity to the shaft bottom, and the air-shaft as well, the fire-basket is able to furnish the required amount of air. Coal 3½ feet thick, and worked on the long-wall plan. The soapstone forming the roof is soft and friable, and very difficult to keep it secured, requiring a great amount of timber to be used, but the mine can be operated more profitable under this system than with the room and pillar plan in this soft roof. Coal consumed at Columbia, and by the railroad company. From 30 to 40 men employed, and 70 cents per ton paid for mining clean coal.

Scott Gordon, mine located near Columbia. Drift opening. Coal 2½ feet thick, and worked on the room and pillar plan; from 6 to 10 men employed. The product is consumed at Columbia.

Oakland Coal Co.—This company is a combination of small operators who for years have been mining in both drift mines and strip-pits in the neighborhood of Columbia. The product from its mines is hauled in wagons to Columbia, at which point it is mostly consumed.

Geo. Kimball, drift opening, supplying local trade.

Will Mortica operates a mine in same vicinity for local trade.

James Rouse operates a mine 3 miles from Columbia, supplying home demand.

Sam. Gallop operates a mine for home consumption.

John Goffett, drift opening, supplying home trade.

N. B. Zering, drift opening, supplying local demand.

Jas. Crosswhite operates a mine to supply winter trade.

Mitchell Bros., mine near Columbia, operating only in winter to supply home consumption.

Arthur Clarkson, drift opening, supplying home trade.

BROWN STATION POSTOFFICE.

James W. Gaither is operating a mine near Brown station during fall and winter to supply home demand.

M. C. Pedree, mine located near Brown station and the coal is consumed in the immediate neighborhood.

Geo. Rodgers, mine located near Brown station. Shaft 18 feet deep. Horse-power. Coal 3½ feet thick and worked on the room and pillar plan. The coal is hauled to Columbia, where it is consumed.

Isaac R. Davis operates a drift mine in the vicinity of Brown station. Mine only operated in fall and winter. Coal consumed in the vicinity.

HARRISBURG POSTOFFICE.

W. A. Stidman operates a mine near Harrisburg. Coal about 4 feet in thickness, and is the same seam as that which is mined at the Higbee mines. The product of this mine is consumed in the immediate vicinity.

PERCHE POSTOFFICE.

Sims mine, located near Perche postoffice. Mine operated to supply home trade.

J. W. Stone operates a strip mine in this locality to supply home consumption.

SWITZLER STATION.

James Rees operates a mine in the vicinity of this place to supply home trade.

There several other parties taking out coal at other places. In fact, neraly every farmer has coal on his land and mines it on a small scale to supply the local demand.

CALDWELL COUNTY.

Production 17,876 tons.

In the annual report of this Department for the fiscal year, ending June 30, 1894, Caldwell county had 4 productive mines to her credit, but at the close of the present year, there is but one mine in operation in the county.

The Cowgill mine suspended operation during the previous year, owing to the irregularity of the coal, which proved to be unprofitable to operate, and the mine was closed down and abandoned. The Tom Creek mine, which is located southwest of Hamilton, closed down last January, the company having worked out all the coal that could be worked profitably. This company, however, contemplates sinking to the lower seam from the bottom of the present shaft. The lower seam is about 150 feet below the one formerly worked. The Kingston Coal Company was forced to close down its mine last February, having failed to comply with that section of the mining law relating to escapement-shafts. The mine is now idle.

HAMILTON POSTOFFICE.

Caldwell Coal Co.—E. B. Haydes, president. Mine located 2 miles east of Hamilton; shaft, 507 feet deep; equipped with very good machinery for hoisting, ventilating and draining the mine. Ventilation is produced by a 10-foot fan, which was giving good results at dates of inspection. I made three inspections of this mine during the past year, and on each visit found the ventilation up to the requirements of the law and the same well distributed around the workings. The air enters the north entry first and then splits, part going to the east and part to the west side, thence around the face of the workings, meeting again at the air-course leading to the fan-shaft. On my third inspection of this mine, May 6, I observed that the main air-ways were entirely too small, owing to the constant action of the roof in settling, and I instructed the superintendent to widen them out and make the air-course not less than 6 feet wide and 5 feet high. Coal 18 inches in thickness, and worked on the long-wall plan. The roof varies in the character of its formation with either slate, soapstone or sandstone overlying the coal, which makes a very good roof, requiring very little timber to keep it secured. The roadways are high, wide and dry and in very good condition. The mine has a shipping connection with the Hannibal & St. Joe railroad, which consumes nearly all the output of the mine in coaling the passenger engines, being a fine steam coal. The mine gives employment to 90 men.

CALLAWAY COUNTY.

Production 18,571 tons.

The principal mines in Callaway county are located in the vicinity of Fulton, and are only operated in fall and winter to supply home consumption. The only mine in the county having shipping facilities is operated by the Fulton Fire Brick & Mining Co. The output of coal in this county during the past year has been 18,571 tons, which was sold at an average of $1.32 per ton, while the previous years' report gives the output at 23,223 tons, and an average selling price of $1.58 per ton, thus showing a decrease in the production of 4652 tons during the past year, and a reduction of 26 cents per ton in the selling price of the product. Following is a description of the larger mines:

FULTON POSTOFFICE.

Wm. Castle is operating half a mile southeast of Fulton. Drift opening coal 28 inches thick, and worked on the room and pillar plan, and the product consumed at Fulton.

I. Mahony operated a drift mine on the Curd land. This mine was formerly operated by Ed. Curd, who leased it this year to the present operator; coal varies from 18 to 24 inches in thickness. Mine operated for local trade, and the coal is consumed at Fulton.

Chris. Lambes is operating a mine also on the Curd land. Drift opening; coal 24 inches thick and worked on the long-wall plan. The product is consumed at Fulton and vicinity.

Ri. Cumberland is operating the mine formerly worked by Rufus Bishop. Mine operated only in fall and winter to supply the local demand.

Jake Simmons operates a mine south of Fulton; drift opening; coal 32 inches thick. Mine operated to supply the home trade, and the product consumed in the surrounding neighborhood.

James Smith.—Mine located south of the Simmons mine. This is the most extensive mine in this neighborhood. The coal is of the same thickness and existing conditions, the same as that of the other mines in this locality. All of the product is consumed at Fulton.

John Harris.—Shaft 33 feet deep; horse-power. Mine located 1 mile south of Fulton, and operated to supply home trade.

John Marsenkoff.—Mine located about 2 miles south of Fulton on the Jefferson City road. Shaft 50 feet deep; horse-power. Coal 3 feet thick and worked on the room and pillar plan. Ventilation is furnished by a small fire-basket. The coal is hauled to Fulton where it is consumed.

Sam. Maycock operates a mine near Fulton to supply local trade.

Fulton Fire Brick and Mining Co.—L. V. Nicholas, superintendent. Mine located 2 miles south of Fulton and connected with the Mexico and Cedar City branch of the Chicago & Alton railroad. Shaft 100 feet deep and operated with steam-power for hoisting. First inspection was made December the 6th, 1894, and the upper part of the mine where the coal was taken out was found in very good condition, with the ventilation up to the requirements of the law. But the lower part of the mine where the clay is taken out I considered unsafe, as no avenue of escape was left for the men to get out in case of accident by fire or caving in. The company was notified of this defect and instructed to make the necessary changes at once, which was complied with. April the 4th I made another careful inspection of this mine, and found a deficiency in the ventilation in all parts where the coal was being mined. The clay mine which is worked 30 feet below the coal caused a great squeeze in the latter and thus contracting the air-ways to such an extent as to prevent the passage of the required quantity of air through the mine. The following letter was sent to the company:

JEFFERSON CITY, Mo., April 8, 1895.

Fulton Fire Brick and Mining Co., Fulton Mo.:

Gentlemen—On investigation of your mine last week, a deficiency was developed in the ventilation at several points, and the men found suffering for want of air. The present condition and capacity of your furnace is inadequate to the proper ventilation of your mine.

The clay mine having been worked under your furnace causes such a squeeze and so reduces the area of the furnace as to prevent the passage of a sufficient amount of air.

I hereby condemn the furnace and insist that you enlarge or replace it with a fan which will give better results. You are respectfully requested to comply with these instructions at once, and oblige,

Yours respectfully,
CHAS. EVANS,
State Mine Inspector.

On the following day a reply came to the above letter as follows:

FULTON, MO., April 9, 1895.

Chas. Evans, State Mine Inspector:

Dear Sir—On Thursday, at 1 o'clock, our air-shaft took fire from the furnace and burnt out and filled up probably 25 feet. I have it cleaned up now to within 12 feet of the coal, and by noon today will have it clear to the coal and cleaned up. We have temporarily turned the air the other way, in through the air-shaft at cages way, and will put in a fan at once. Will try and get it to work by Friday of this week. I am keeping a man at the furnace at the old air-shaft constantly night and day.

Respectfully,
L. V. NICHOLAS, Supt.

It will be seen by the above letter that the furnace was forced in order to procure the necessary amount of ventilation to the mine and the shaft timber took fire. April 24 the following letter was received at this office:

FULTON, MO., April 24, 1895.

Chas. Evans, State Mine Inspector:

Dear Sir—We have a 6-foot ventilating fan working nicely at our mine, and it is doing splendid work. Our men say there never was a mine ventilated in this county like our is.

Respectfully,
FULTON BRICK & MINING CO.

Coal in above mine is 3 feet thick; worked on the long-wall plan, and $1 per ton paid for mining clean coal. Thirty feet below the coal a fire-clay seam is being worked by the company; both the clay and coal being hoisted out through the same shaft. The clay seam is about 8 feet in thickness, worked on the pillar and room plan, and 26 cents per ton paid for mining same. A large plant has been erected at the mine to manufacture the clay into brick and other articles, and much of the coal mined by the company is used for that purpose. About 50 men employed in the mines and about 25 more at the brick works. The mine is practically dry.

GUTHRIE POSTOFFICE.

W. Criswell is operating a mine near Guthrie. Drift opening. Coal consumed at home.

AUXVASSE POSTOFFICE.

J. S. Henderson operates a mine near this place. Shaft 25 feet deep; horse-power. Coal 3 feet thick. Mine only operated in fall and winter, and the product used in the surrounding neighborhood.

HAM'S PRAIRIE POSTOFFICE.

J. A. Little is operating a mine on the Week's land. Slope opening. Coal about 2½ feet thick. Mine operated to supply local trade.

CARROLL COUNTY.

Production, 2664 tons.

Carroll county is nearly all underlaid by the coal measure formation, but very little mining has been carried on thus far. The coal varies in thickness from 18 to 24 inches, and is overlaid with good roof. The same seam of coal is found here as that so extensively mined in Ray county, and the following parties are operating mines on a small scale.

CARROLLTON POSTOFFICE.

Leander Christmas.—Mine located near Carrollton; shaft 20 feet deep; horse-power. Mine only operated in fall and winter; the output is consumed at Carrollton.

Wilson Scott is operating a mine in the same locality to supply local trade.

Henry Brooks.—Slope opening on the same coal seam as the other mines, supplying home trade.

G. W. Williams is operating a mine on Preston Wallace's land; shaft 18 feet deep; horse-power; coal consumed at Carrollton. There are several other parties taking out coal in the surrounding country, but I could not afford the time to visit them all.

LITTLE COMPTON POSTOFFICE.

The following named parties are mining coal in the surroundings of Little Compton: Wm. Hughes, Walter Reynolds, W. F. Ogle, James Whitehead and Ralph Farr. The latter are operating a strip-pit which is the largest producer in the locality. These mines are termed local as the output is entirely consumed in the immediate vicinity. There are several other local mines in different sections of the county, operated in the fall and winter, to supply the home demand.

CEDAR COUNTY.

Production 1590 tons.

There are several parties operating mines in the vicinity of Jerico, on a small scale, to supply home demand. The coal is found in local deposits in the hills, and the mines entered by drifts and slopes. The coal is from 26 to 36 inches in thickness, worked on the room and pillar plan, and $1 per ton is paid for mining. The coal is carried away in wagons and consumed in the neighborhood.

A. B. Davies, drift opening, supplying home trade.

W. S. Picket is operating a mine to supply the local trade.

J. P. Duncan is operating a mine on the Stratton land, to supply home trade.

G. M. Poage, drift opening, and supplying home trade.

Lee Daniels owns some coal land in this locality, and leases his mines to other parties to operate.

James M. Dormer has bought the Davies mine, and will operate the same in the future. There are other mines in this vincinity operating during the winter months to supply the home market.

ELDORADO SPRINGS POSTOFFICE.

There are few local mines around this place operating during the winter to supply home trade. The output of these will be found in the table of this county.

CHARITON COUNTY.

Production, 1859 tons.

While all of Chariton county is underlaid with the coal measure formation, yet like Carroll, the adjoining county, very little mining is carried on. The mines which are operated in this county are only worked on a small scale to supply local demand during the fall and winter. Following is a description of a few of the mines of this county:

BRUNSWICK POSTOFFICE.

Michael McNamee is operating a mine north of Brunswick; coal 18 inches thick and worked on the long-wall plan.

Wm. Salisbury operates a mine in same locality as the above named mine, working the same seam and selling the product in same market.

A. J. Simpson operates a mine to supply home trade.

Chas. Owens.—Mine located north of Brunswick; drift opening; coal sold to home market.

Thos. O. Williams.—Mine located near Chariton river, northwest of Brunswick. Mine operated to supply home consumption.

INDIAN GROVE POSTOFFICE.

R. W. Isle operated the Isle mine during last winter; coal consumed at home.

John Huenten's mine was operated by R. Brewer, and the coal was consumed in the surrounding vicinity.

J. Wesley Isle operates a mine near Indian Grove, to supply the local demand.

Joseph Fuller operates a mine in the same locality. The product is consumed in the vicinity.

NEWCOMER POSTOFFICE.

All the mines in the surrounding of Newcomer are strip-pits. The coal is about 18 inches in thickness and is obtained by taking off the overlying surface first and then quarrying the coal. The following parties are taking out coal in this vicinity and sell the same to supply the home demand: Henry Sipp, Charles Mickey, W. B. Bruce and Valentine Kahler.

SALISBURY POSTOFFICE.

Salisbury Coal Company.—Mine located on the outskirts of the city limits. Shaft 165 feet deep; steam-power used for hoisting. This is a new mine opened out in the fall of 1894, and the mining of coal commenced in November of same year, and at date of my visit, December 22, 1894, considerable work had been done in the way of driving entries to open the mine. But unfortunately for all, the coal proved to run irregular and faulty. The roof also was soft and friable and hard to keep secured, and I am informed that the mine has been abandoned.

Rolly Johnson operates a mine near Salisbury in fall and winter to supply home demand.

John Johnson is operating a mine to supply local trade.

John P. Thomas.—Drift opening. Mine only operated in fall and winter to supply home trade.

Wm. Brooks operates a mine on the Brooks' Farm. Coal 20 inches thick. Mine operated in fall and winter to supply local demand.

Geo. Bell, local mine to supply home trade.

Jas. Henderson is operating a mine near Salisbury to supply the home trade.

Peter Holly operates a mine in the same locality to supply the home market. All the coal taken out at these mines is used at Salisbury and immediate surroundings. There are several other local mines in the vicinity of Keytesville, which I have not had the opportunity to visit.

CLAY COUNTY.

Production, 4000 tons.

Missouri City Coal Co.—Mine located inside the city limits on the west side, and connected with the Wabash railroad. Shaft 165 feet deep, equipped with good machinery for hoisting. This is a new mine sunk in the summer of 1894, struck coal at the above-mentioned depth, and commenced taking it out the latter part of September of same year. A new pit-head has been built and an engine-house erected. A pair of engines have been set which were built by the Keystone Iron Company of Kansas City, cylinder 10x12 connected direct to a 4-foot drum. Cages were built at the works, supplied with all the modern improvements, and are swung by a new hoisting rope. Coal about 20 inches thick and worked on the long-wall plan. It is underlaid with fire clay mining, and overlaid with strong rock roof. Ventilation is furnished at present by the aid of a steam-blower in the air-chamber which was giving satsifaction. On my visit to the mine on the 18th of May the company was notified to sink an escapement-shaft at once and have the same completed by October 1, 1895. Employment was furnished to 38 men.

COOPER COUNTY.

Production, 2492 tons.

BOONVILLE POSTOFFICE.

Hazel Springs coal mine, located west of Boonville, and operated during the winter to supply the home demand.

Henry Sanders.—Mine located near Boonville; drift opening; coal about 18 inches thick, and worked on the long-wall plan. This is the most extensive mine in the vicinity of Boonville. The coal is consumed in the immediate vicinity.

Michael Felton.—Mine located 4 miles southwest of Boonville. The coal at this mine is taken out of a pocket and hauled in wagons to Boonville, where it is consumed.

Casper Koegner is operating a mine on a coal pocket, and is hauling the output to Boonville.

H. W. Jenkins.—Drift opening, supplying home trade.

Missouri Valley Coal Co.—Mine located 4 miles west of Boonville, and connected with the Boonville and Lexington branch of the Missouri Pacific R. R. This is a coal pocket situated on the south side of of the Missouri river. A shaft has been sunk to a depth of 65 feet, equipped with steam-power for hoisting. The mine has been in operation for a number of years, and a large amount of coal has been taken out, but there is no system of mining practiced at this mine, and much of the coal will be lost. It is a very large pocket of the cannel variety, but the demand for this kind of coal is limited; from 4 to 6 men employed.

DADE COUNTY.

Production, 5066 tons.

Coal mines have been operated in this county for a number of years, but only on a small scale, to supply the demand of the surrounding neighborhood. The coal is found in the high hills, and the mines are entered by drifts and slopes; it will vary in thickness from 26 to 34 inches, and is of very good quality. The coal is overlaid with good roof, and underlaid by a soft fire-clay mining; worked on the room and pillar plan, and one dollar per ton is paid for mining. All the mines are located 12 miles from any railroad, and the coal is taken away from the mines in wagons, and consumed at Lockwood, Greenfield, Golden City and surrounding country. Following is a list of names of parties who are operating mines in this county:

SYLVANIA POSTOFFICE.

J. A. Clayton and E. D. Benson own and operate the mine formerly operated by W. R. Clayton. Drift opening; coal 32 inches thick; worked on the room and pillar plan; supplying local demand.

Benjamin Wooldrag.—Mine located near Sylvania. Drift mine, and worked on the room and pillar plan.

Thos. Allen is operating the McGarvey mine. Slope opening; coal 30 inches thick, and worked on the room and pillar plan; 6 men employed.

Milliard Johnson is operating a mine near Sylvania, and the product is sold at the mine to supply local demand.

J. R. Seaton and W. E. Sutton are operating the Seaton mine; slope opening; coal 33 inches thick and worked on the room and pillar plan; coal consumed in surrounding country.

W. Ramsey is operating a drift mine in the vicinity of Sylvania to supply local trade.

Luke Waterbury operates a mine in the same locality to supply the home market.

Robert McCluey.—Mine located near Sylvania; drift opening; coal 30 inches thick and worked on the room and pillar plan. Mine operated during cold weather.

R. M. Sharp is operating a strip-pit in the vicinity of Sylvania; coal is sold and consumed in the immediate vicinity.

Thos. Gardner operates a mine in the same locality to supply home trade.

Frank Farmer.—Mine located near Sylvania, supplying the home demand. There are other mines operated in the fall and winter in the neighborhood of Cedarville which I had no time to visit.

GRUNDY COUNTY.

Production, 37,200 tons.

TRENTON POSTOFFICE.

Grundy County Coal Co.—N. Shanklin, superintendent. This company owns and is operating two large and extensive mines in this county; both are located at Trenton, and have shipping connection with the Chicago, Rock Island & Pacific railroad, which road consumes the product of the mines, with the exception of that portion which is sold to supply the home demand. The coal is 18 inches thick, and worked on the long-wall plan; it contains but little sulphur, and is considered for steam purposes superior to any coal used on the road. The roof is a gray shale, stands well in rooms, requiring little or no timber to keep it secured. About 18 inches of the roof is taken down on the roadways to give heighth to load the coal. Price paid for mining varies in summer and winter from $1 to $1.12½ per ton. These two mines, when run to their full capacity, furnish employment to 150 men. Following is a description of each mine as found at dates of inspection, September 26, 1894, and the 7th of May, 1895.

Mine No. 1 is a shaft, 210 feet deep; steam plant. This mine has been in operation for about 20 years, and is very extensively worked. The shaft curbing and the shaft bottom is in bad condition and greatly in need of repairs. The north cage was also found in bad condition, and was condemned. Both cages had been used without bonnets, and no safety gates were found around the pit opening. The company was notified of this neglect, and was requested to make good the requirments of law in this respect at once, as will be seen by a letter written to them, and which is published in this report. Mine is ventilated by a 10-foot fan, which was giving very fair results, considering the great distance the air traveles through very small, narrow and contracted air-ways. The air was found weakest at the face of the straight east entry—enough air, however, was passing to make good the requirments of the law, and the same was fairly distributed around the workings. On my second visit, the mine had been temporarily closed, and all the men put to work in mine No. 2. The output of this mine is consumed by the railroad company in coaling its engines at the mine, where 30 coal-chutes are erected. J. Bingey is foreman at this mine.

Shaft No. 2.—170 feet deep; equipped with first-class machinery. The pit-head and top building are well constructed, and the safety appliances all found in good condition. A 10-foot fan is used in ventilating the mine, same being set on top of the air-chamber, which is partitioned off from one end of the hoisting shaft. The mine was found in a miserable condition at date of my first inspection, September 26th. The timbers in the shaft bottom were bent and broken in places, making it very dangerous for the employes to pass under it. The air-ways were found closed on the southwest side of the shaft, and no air was found traveling in the second and third northwest entries. I found the air coming out through the southeast entry before it reached any of the miners, owing to a defective canvas door hung on that entry, and which was rotten and torn into strings. On this inspection I found the foreman of the mine, Mr. R. Aladize, on the pit-top, he was attempting to economize in mine expenses by occupying the dual position of mine foreman and that of weighman at the same time. The duties of a foreman demands his presence in the mine, especially when in operation, while the duties of a weighman require his constant and vigilant attention while a pound of coal is being hoisted out of the mine. It should not be difficult to see how false was the economy that would sacrifice the care and attention necessary to so large a mine to save the small daily wages paid a weighman. I learned upon further inquiry that the foreman had not been in the mine for weeks previous to my visit. The company appears to have been in ignorance of this ruinous condition of affairs until it received the following letter from this office:

JEFFERSON CITY, September 29, 1894.

Grundy County Coal Co., Trenton, Mo.:

GENTLEMEN—I inspected your mines September 26, 1894, and found the north cage in the old shaft in a rickety condition and wholly unsafe for use. You are hereby requested to replace it with a new one at once. You are also violating section 7066, R. S., in running your cages without the proper covering. The planks which are nailed to the top of the cage, does not accord with the law. The cages must be covered with boiler iron. You neglect to comply with section 7068 R. S. of the law in not making top of shaft secure by safety gates, and which gates I now insist shall be put up at once. The curbing in old shaft is in very poor condition and must be attended to at once, otherwise I shall have to condemn it as making the shaft unfit for the passage of men. I called your attention to this matter about a year ago, at which time I had your promise that the shaft would be made safe. At shaft No. 2 (new shaft) I found the shaft bottoms on west side in an extremely dangerous condition, and I hereby condemn it as unsafe with its broken timbers for men to work under, as they are compelled to do while caging. The place must be retimbered at once. The air-ways in the southwest were found closed, with no air traveling in the straight west, nor in the second and third northwest entries. The air forced from the down-cast to the east side was found coming out of the first southeast entry, owing to a defective canvas door hung on this entry, and which had been torn into strings by passing trips and left to rot; the air was allowed to escape before reaching the miners. The communication between the two shafts, which has been neglected, must be cleaned, enlarged and made to comply with the law. In thirty days I shall visit your mines and expect to find these instructions complied with.

Respectfully,
CHAS. EVANS,
State Mine Inspector.

On my next visit I found that a great improvement had been made at the mine. The air-courses had been cleaned and wooden doors set in place of canvas formerly used, and the ventilation was found satisfactory all around the mine. The shaft bottom was retimbered and made safer, but not entirely satisfactory, as some timbers were yet in poor condition. The communication between the two shafts had been cleaned, enlarged and timbered, entries had been made higher and wider, cleaned and timbered, and the foreman was found on this visit at his post of duty, down in the mine. The coal is of same thickness as that of mine No. 1. The plan of mining is also the same, but the roof is not so good here as at the other mine, and requires more timber to keep it secure. The mine is making a very large amount of water, but is easily handled by pumps. Employment at date of last visit was furnished to 120 men.

GALT POSTOFFICE.

A shaft was sunk one mile west of Galt last winter, and struck 26 inches of coal at a depth of 210 feet. The mine is operated at present to supply the local demand, but a connection will be made soon to ship the product over the Q., O. & K. C. railroad. It is operated on the long-wall plan, and the output is hoisted by steam-power. The shaft was sunk by R. A. Brough, but sold out this spring to Norman Jones, who operates the mine at present. I made one visit to the mine, but could not make an inspection of the underground workings, as the mine was not running at date of my visit.

HENRY COUNTY.

Production, 98,202 tons.

Henry county is all underlaid by the coal measure formation, and ranks as one of the large coal-producing counties of the State.

The principal mines are located at Brownington, Deepwater, Clinton, Calhoun and Lewis station. But mining is being carried on in a limited manner at several other places throughout the county to supply the home demand. The M., K. & T. railway, passing through the county from north to south and the K. C., Ft. S. & M. and the K. C., O. & S. railways passing in other directions, furnish good shipping facilities for the product. During the past year 98,202 tons of coal have been mined, which shows an increase of 13,729 tons over the previous year. In producing this amount of coal, 33 mines were operated, and a description and location of each mine is as follows:

BROWNINGTON POSTOFFICE.

D. C. Blanchard and Son.—Mine located 4 miles south of Brownington; shaft 33 feet deep; horse-power; coal 36 inches thick and worked on the pillar and room plan; mine ventilated by a furnace; coal is hauled from the mine in wagons and loaded on railroad cars at Eaton switch and shipped over the K. C., Ft. S. & M. R. R., and consumed at local towns along the line of that road. From 6 to 8 men employed, and are paid for mining, 80 cents per ton in winter and 70 cents in summer.

Huey & Kerens.—Mine located 4 miles south of Browington; drift opened from the bottom of a strip-pit; coal hauled in wagons and loaded on cars at Eaton switch and shipped over the K. C., Ft. S. & M. R. R.

Tyrell Co-operative Coal Company.—Mine located about half way between Brownington and Deepwater; shaft 40 feet deep; horse-power; ventilation is produced by a furnace; coal about 38 inches thick and worked on the room and pillar plan; mine very wet. The product is shipped over the Bailey road, and consumed at local towns along the line; employment given to 10 men.

Henry Stevens.—Mine located about half way between Brownington and Deepwater; slope opening; coal 3 feet thick and worked on the room and pillar plan; ventilation furnished by a small furnace. Coal taken away from the mine in wagons, and is consumed by the brick works company near Brownington.

R. L. Thompson & Co.—Mine located 2 miles west of Brownington and connected with the Bailey road by a swtich. Shaft 50 feet deep; hoisting by steam-power. This mine was formerly operated by horse-power for hoisting, but during the past year machinery was put in. A fan has also been erected to take the place of the furnace. I made the first inspection December 14, 1894, and found the air split at the bottom of the down-cast, one current going north and another going south and along the cross-entries. The fan was doing very effective work and a large volume of air was forced down, but nearly all of it was lost before it reached the miners, owing to the impractical method of hanging canvas doors on main entries, which are so torn by passing trips that they are little better than strings in a short time, causing the miners to suffer for air when there is plenty in the mine, but not properly taken care of. I notified this company to replace every canvas door by a wooden one, and limited them to 20 days to make the change. I visited the mine again in January and found it idle. On the 10th of April I visited the mine again and found only 3 men at work, all of them were interested in the mine. I noticed one wooden door had been set, but very poorly constructed—it was made of 1-inch pine lumber and improperly hung. Coal 3 feet thick and worked on the room and pillar plan. Coal shipped over the Bailey road. Mine very wet and in poor condition generally.

CALHOUN POSTOFFICE.

Calhoun Coal and Lumber Co.—Mine located 2 miles southwest of Calhoun, and connected with the M., K. & T. R. R. Shaft 35 feet deep; steam-power used for hoisting. Mine ventilated by an 8-foot fan, which was making 110 revolutions per minute and only moving 2300 cubic feet of air around the workings in same time. The air-ways between the fan-shaft and main entry were nearly closed; also the air-course between the straight south and the west entries, and the men found suffering for air. The company was notified to remedy the evil at once. April 9 I visited the mine again, and found that very little improvement had been made since my former inspection, and the ventilation was found deficient in every part of the mine, and the company was again notified of the condition of the mine by the following letter:

JEFFERSON CITY, Mo., April 10, 1895.

Calhoun Coal and Lumber Co., Nos. 606 and 607 Heist Bldg. Kansas City, Mo.:

Gentlemen—I made an inspection of your coal mine near Calhoun yesterday, and found its ventilation defective, in fact there was not a sufficient amount of air passing along the face of the work to move the vanes of the anemometer with which I measure the air. I attempted to crawl through the air-ways, but failed, and when an air-course is in the condition that a man can't crawl through, it is time that the mine should be condemned. I notified you last December that your mine was not sufficiently ventilated, and from appearances there is every indication that my instructions given at that time have been ignored, at least there is no evidence of any improvement of consequence. Connections should be made between the south entry and the face of the work from the west entry in order that the air may be made to circulate properly.

You are hereby respectfully but firmly notified of my intentions to demand prompt improvement in your mine in the direction indicated that the same may be operated in accordance with the law. Failure to comply within the next thirty days, with the instructions herein, will necessitate a resort to the law, to force a compliance or the closing of your mine.

Respectfully,

CHAS. EVANS,

State Mine Inspecto

I visited the mine again on the 19th of May, and found considerable improvement had been made by making a connection between the main south and the southwest face of the workings, but the air-course between the main south and the fan-shaft was still uncleaned. Coal 28 inches thick, and worked on the long-wall plan, using the moveable face track; mining was paid for at rate of 70 cents per ton for clean coal. The output is consumed by the railroad company, which is taken on the engines from chutes erected at the mine for that purpose; 30 men employed.

The Parks mine is operated by Bert Carpenter. Mine located south of Calhoun; drift opening; coal 3 feet thick; mine only operated during the winter to supply the home trade.

Edwards & Minish.—Mine located south of Calhoun, and only operated to supply home demand.

CLINTON POSTOFFICE.

Hancock Coal Co.—Mine is located 1½ mile east of Clinton. Shaft 32 feet deep; horse-power; coal 24 inches thick, and worked on the room and pillar plan, paying $1 per ton for mining. The coal is hauled in wagons to Clinton, where it is consumed. An average of 9 men employed.

Owens mine, located 3 miles east of Clinton; shaft 30 feet deep: horse-power; coal 2 feet thick, and operated on the room and pillar plan, paying $1 dollar a ton for mining. Mine operated during cold weather to supply home trade.

Peck & Bailey operate a mine formerly operated by Hess, located near North station. Coal 34 inches thick, and worked on the room and pillar plan. The coal is hauled in wagons and loaded on cars at North switch and shipped over the K. C., Ft. S. & M. R. R.

H. A. Harrison is operating a strip-pit 3 miles southeast of Clinton, and hauling the coal to Clintion, where it is consumed.

Stockton Bros.—Mine located about 4 miles southeast of Clinton. Shaft, 38 feet; horse-power; coal 30 inches thick and worked on the room and pillar plan. On my second visit I found the old mine had been abandoned and the Stockton Bros. were sinking another shaft on the same land, which will be ready for operation for the fall and winter trade. All the local mines, which are operated in the surroundings of Clinton, are working the same coal seam, and on the same method, and nearly all the product of the mines is consumed at Clinton and vicinity. The mines are all ventilated by the aid of furnaces, some of which are very small and inadequate to properly ventilate the mine, but being operated only in fall and winter the air is generally very good.

Wm. England is operating a drift mine 4 miles southeast of Clinton in the fall and winter to supply the home demand.

Theodore Gehart is operating a mine on his own land, 3 miles southeast of Clinton. Mine only operated in the winter to supply local trade.

John McGinnis operating a small mine in the same locality to supply home trade.

Missouri, Kansas & Nebraska Coal Company—mine located at North Station. It was formerly known as North & Woods' mine. The coal is brought out through a vertical shaft 50 feet deep, and hoisted by steam-power. Ventilation is furnished by a small fan, which is set on top of the shaft-landing and forcing the air through a chamber partitioned off at one end of main shaft. The fan is poorly constructed, and the partition not having been made air-tight, a large amount of air leaks through and returns to the surface before it reaches the bottom. I made the first inspection of this mine December 12, 1894, and found the ventilation poorly arranged and cared for; in fact, there was scarcely any air traveling in the second east entry, where 22 men were working. Canvas doors were used all through the mine in place of wooden ones, and the out-of-date system of single-entry is practiced here altogether; thus the combination of errors resulted in nearly smothering all the miners. I notified the company to remedy the condition of the mine within 30 days, or the mine would be closed. January 22, 1894, I visited the mine again, and found that the second east had been abandoned and all the men put to work on the east and northeast entries. Some improvement had been made in the ventilation, but still a deficiency was found. About 50 miners were at work and were its operators—they having leased the mine of the company, and to this company the product was furnished by them at a given price. April 13th I visited the mine again, and found only 16 men at work, and that the mine had changed hands again—Bogard & Morris had leased the same. I wish to state here that I have made 11 visits to this mine during the past three years, and found it operated by new parties on every visit, which accounts in a large measure for its condition. The coal is about 3 feet in thickness, and worked on the room and pillar plan, paying 80 cents per ton for mining clean coal. The output is shipped over the K. C., Ft. S. & M. railroad, and is consumed at local towns along the line.

DEEPWATER POSTOFFICE.

Bean & Lilly Coal Co.—Mine located east of Deepwater, and connected with the Baily railroad by a switch. Shaft 85 feet deep, and operated by steam-power; ventilation is produced by a 12-foot fan, which was making 72 revolutions per minute and forcing 9320 cubic feet of air into the mine in same time. This volume of air is divided into two currents, one passing to the north and the other to the south; very little of it was found circulating along the cross-entries, owing to defective doors and curtains, and very near all the air was found returning to the up-cast before it reached the miners. The company was notified to set doors in place of canvas and remedy other defects at once. I inspected the mine again on the 11th of April and still found a deficiency of air in the southeast entry. In fact, no air can be made to travel where there is no air-course open, and the men at this mine could only work a few hours in the morning of each day for want of air. This is another mine which is operated on the single-entry plan, which is so hurtful to the health of the miners, and I am delighted to know that the law has put a stop to the further operation of mines on this system in this State. Coal from 30 to 40 inches in thickness, and worked on the room and pillar-plan, giving employment to 50 men and boys. The coal is consumed by the railroad company.

Hurst & Mantle.—Mine located 5 miles south of Deepwater; shaft 35 feet deep and operated on the room and pillar plan; hoisting by horse-power; coal 34 inches thick; pay 80 cents per ton for mining clean coal. The product is hauled on wagons and loaded on railroad cars at Eaton switch, and shipped over the K. C., Ft. S. & M. R. R., and consumed at local towns along the line.

McFadden Coal Co.—Mine located in the brush, 5 miles south of Deepwater; slope opening; thickness of coal, mode of working and ventilating, price paid for mining and all other conditions are the same at this mine as that of other mines in this locality. Coal hauled in wagons loaded on same switch and shipped on same road as the other mines.

Rees & Son.—Mine located in the brush on the southeast side of Cooper creek. Mine entered by a slope coal about 3 feet thick and worked on the room and pillar plan; ventilation produced by a small furnace, which was giving poor results at date of inspection, and instructions were given to furnish the mine more air. Coal hauled in wagons, and shipped over the K. C., Ft. S. & M. R. R. The product of this mine is consumed at the tile-works at Deepwater in the manufacture of tiling, brick and other articles.

Brann Coal Company.—Mine located in the same locality as the last named mine, working the same seam, and loading on same switch, and shipping over the same road, and coal consumed at same market.

Austin Newbill and Joseph Handford operate a mine on H. Hobbs' land. Shaft 32 feet deep. Horse-power. Ventilation furnished by a furnace. Coal 3 feet thick, and worked on the room and pillar plan. Coal hauled on wagons and loaded on cars on same switch and shipped over same railroad as other mines in same locality.

William Howard is operating a strip-pit in the same vicinity, and the coal is consumed in the surrounding country.

John Hurst is operating a mine close to Deepwater. Shaft 25 feet deep. Coal consumed in the vicinity of Deepwater.

There are other mines operating in this neighborhood on a small scale which I had no time to visit. Their output is very small.

Central Coal & Coke Co.—John Perry, general manager, and Robert Barr, superintendent. Mine located one mile northeast of Deepwater and connected with the K. C, Ft. S. & M. railroad. Shaft, 60 feet deep; equipped with good machinery for hoisting. Ventilation is produced by a 14-foot fan, which furnishes the required amount of air. The ventilative current is split at the face of the south entry and forced to the east and west, circulating along the face of the workings and supplying plenty of fresh air to every man in the mine. In fact, this is one of the best ventilated mines in the State, clearly indicating that Mr. Barr, the superintendent, is a practical man. Coal 3 feet thick, and worked on the long-wall plan. Mining is paid for at the rate of 85 cents in winter and 75 cents in summer for clean coal. Owing to the small demand for coal during the past year, the output of this mine is rather small. The coal is shipped over the K. C., Ft. S. & M. railroad to market, but a considerable quantity of the output is consumed by the railroad company.

LEWIS STATION POSTOFFICE.

Co-operative Coal Co.—I. M. Johnson, superintendent. Mine located north of Lewis station and connected with the M., K. & T. railroad by a switch. I visited and made a careful inspection of this mine December 9, 1894, and April 9, 1895, and found all the underground workings in good condition, with the requirements of the law closely observed. The shaft is 70 feet deep and the hoisting is done by steam-power. Mine ventilated by a fan, which was giving satisfaction at dates of my visits. I found the mine well ventilated. Coal about 28 inches thick, and worked on the long-wall plan, paying for mining 70 cents per ton. Coal consumed at Sedalia and other towns along the M., K. & T. railroad. From 20 to 30 men employed.

D. B. Pigg & Co.—Mine located 1½ mile northeast of Lewis station. This mine is entered by drifts, of which one is used for the inlet of the air and the other for the outlet. A furnace is used to furnish the ventilation, which was giving good results at dates of inspections. Coal 30 inches thick and worked on the long-wall plan, using the movable face track, and paying 70 cents per ton for clean coal. Employment is given to 15 or 20 men. Coal is taken away from the mine over a tram-road for three-fourths of a mile and loaded on railroad cars at switch and shipped over the M., K. & T. R. R. to Sedalia and local towns along the line.

Tebo Coal Co.—John Bowen, superintendent. Mine located 2 miles east of Lewis station; shaft 60 feet deep; steam-power used for hoisting; ventilation is produced by a furnace, which was giving good results at dates of inspections. On date of last inspection, April 9, I found that all its work on the east side had been abandoned and new works opened out on the west side. Coal 30 inches thick and worked on the long-wall plan, using the moveable face track and paying 70 cents per ton for mining screened coal. The entire output of the mine is used by the railroad company in coaling their engines at the mine where chutes have been erected for that purpose.

URICH POSTOFFICE.

John Bartle is operating a mine near Urich. Coal 18 inches thick; mine operated to supply local trade.

Wm. Walsh operates a mine in the surroundings of Urich to supply local trade.

N. H. Stewart is operating a mine near Urich to supply home consumption.

WINDSOR POSTOFFICE.

B. Beaman operates a mine on the Miller land, 6 miles north of Windsor. Shaft 35 feet deep; horse-power; coal 5 feet thick, and worked on the room and pillar plan; output taken away from the mine in wagons, and consumed in the surrounding country.

Wm. Shook operates a mine in the same locality as the Beaman mine, on the F. B. Hines' land. Shaft 32 feet deep; horse-power; coal 5 feet thick, and worked on the room and pillar plan. This is a pocket of coal, which was discovered in this neighborhood some years ago, and has been worked ever since, but only on a small scale to supply local demands, as the coal is located 6 miles north of the railroad at the nearest point. It is overlaid by a good roof, and can be operated very cheap, as scarcely any timber is used. The coal is of good quality; from 4 to 10 men employed.

W. E. Hughes operates a mine 2 miles south of Windsor, on the J. C. Beedy land. Shaft 25 feet deep; horse-power; coal 5 feet thick, and worked on the room and pillar plan; coal hauled in wagons, and shipped over the M., K. & T. R. R. to Sedalia, but a large amount is consumed in the surrounding country, and at Windsor. There are other parties operating mines in various parts of Henry county to supply the local trade, which I did not have the time to visit.

HOWARD COUNTY.

Production, 1440 tons.

FAYETTE POSTOFFICE.

Enterprise Coal Co.—R. S. Cooper, president and manager. Mine located southwest of Fayette close to city limits. Drift opening and the coal worked on the long-wall plan. Coal about 16 inches thick, and $1 per ton paid for mining. A company composed of the leading citizens of Fayette was organized and opened a mine which has supplied the vicinity of Fayette with coal during the past winter, and furnished employment to about 15 men. The coal is of very good quality and finds a ready market at home. The same company is opening a mine further south which will be ready for operation in the fall. The coal at the new mine will be about 3 feet thick and will have to be hauled in wagons 4 miles to reach a market.

Joseph Howard operates a drift mine east of Fayette to supply local demand.

Russell Coal Co. operates a slope mine near Russell station; coal hauled in wagons and loaded on cars and shipped to market over the M., K. & T. R. R. There are other parties taking out coal in various sections of Howard county on a small scale to supply the home demand, which I had no time to visit.

JACKSON COUNTY.

Production, 14,632 tons.

KANSAS CITY POSTOFFICE.

Brush Creek Mine.—James Russell, superintendent. This mine is located about two miles southeast of the city limits of Kansas City, and is the only mine in Jackson county. The shaft is sunk to the lower vein, which is 400 feet below the surface, but the seam that is being worked is 80 feet above, or 320 feet to the landing. Shaft is 7x14 feet in the clear, divided into cageways by partition. The mine is equipped with first-class machinery; the engines are on first motion, and are 20x32-inch cylinders, connected direct to a 7½ foot-drum, with a battery of three boilers, aggregating about 225 horse-power, to generate the steam. A new fan has been built during the year to ventilate the mine, in place of the old one formerly used, and the same is set on top of the escapement-shaft, which was also completed during the past year. This being a very gaseous mine and several explosions having occurred during the previous year, considerable attention has been given it by this Department, no less than five inspections having been made during the past fiscal year. First inspection was made on the 27th of August, and I found great improvement had been made since my former visit. The roof on all the entries had been brushed and made higher, the sides had been trimmed smooth and the roadways lowered. The face of the workings had been straightened by working off the corners, making it all one face in a circular form. The old fan was making 80 revolutions per minute, and was passing a strong current of air into the mine. The main currents travel the north and south entries, and then divide to the east and west sides, passing along the face of the workings until it unites again at the foot of the up cast. However, there was air enough traveling through all the entries to keep them clear of gas and in a safe condition.

October 29 I visited the mine again, having read in the papers that on or about the 20th of that month an explosion had occurred, at which time two men were slightly burned. On investigating the cause of the explosion I found that the escapement-shaft recently sunk was not used for the inlet nor the outlet of the air at that time, as the necessary changes had not been made in the mine for that purpose, and that the top of the escape-shaft was so covered that but very little air was allowed to pass through and consequently gas accumulated in the shaft. This gas was ignited from the lamp of one of the miners on the date above mentioned as he was passing the bottom of the air-shaft in going to his work with a naked light, and as the mine was clear of gas and nothing to feed the flame except in the new and incomplete escapement-shaft, the force of the explosion was confined to this shaft. It blew the covering from over the top of it and doing considerable damage to the shaft. The force of the explosion was felt 3 miles away, but fortunately the two men who ignited the gas were but very little hurt. It took several days to repair the wreck. December 18, 1894, I made another inspection of the mine and found on this visit that a new fan had been built on top of the escapement-shaft, and that it was exhausting the air from the mine and was giving good satisfaction. Tests of the air were taken on this visit and 22,465 cubic feet was found passing, which was equally divided to the east and west sides. This volume of air could be easily increased if the requirements of the mine demanded it. May 18 and July 12 are the other dates of my inspections, and at each visit the mine was found in a good and safe condition. Coal 18 inches thick, and worked on the long-wall plan, using the moveable face track. Mining is paid at the rate of 87½ cents per ton for unscreened coal. From 50 to 70 men employed. The coal is consumed at Kansas City.

JOHNSON COUNTY.

Production, 8873 tons.

Johnson county is all underlaid by the coal measure formation, and has been mined in nearly every township in the county, but only on a small scale. Twenty-seven years ago extensive mines were operated at Carbon Hill and Clear Fork, which mines supplied the entire line of the Missouri Pacific railroad with its coal. But owing to the inferior quality of the coal these mines were abandoned before one-tenth of the coal had been taken out. There are a few mines now operating at Bristle Ridge and southeast of Warrensburg to supply local demand. The only mine in the county having shipping facilities is located at Montserrat.

KNOB NOSTER POSTOFFICE.

Knob Noster Coal Co.—Thos. Boyd, superintendent. Mine located at Montserrat, and connected with the Missouri Pacific railroad. Shaft 186 feet deep and operated by steam-power. This is a new mine opened out last winter. It is sunk in close proximity to an old abandoned mine which is full of water, and the company has been notified to keep a bore-hole 20 feet ahead of all the workings and in all direction where work is driven toward the old mine. The coal is low and faulty and very little mining has been done. From 10 to 15 men employed. Coal shipped over the Missouri Pacific railroad.

MONTSERRAT POSTOFFICE.

P. D. Fitch is operating a mine at Bristle Ridge; coal 30 inches thick; drift opening. The coal is taken away in wagons and loaded on cars at Montserrat, and shipped over the Mo. Pac. R. R.

Joseph Murley is operating a drift mine in the same locality on the same seam of coal, and using the same method of mining as the other mines.

There is a very large field of coal in the vicinity of Bristle Ridge, but being 5 miles from a railroad, it costs too much to put it on the cars and compete with other localities which have better shipping facilities. The coal runs from 26 to 30 inches in thickness, and is of a very fine quality. (I think it is the best coal in the State for all purposes.) It is overlaid by a soapstone roof and fire-clay for under mining. The land is very broken, and the coal crops out in every ravine, and the operators open out a new mine every year. The following parties are operating mines in the Bristle Ridge coal field, and hauling the coal to Warrensburg to supply the home trade: L. M. Herrington, M. B. Meiley, Madison Murray, W. L. Ronomous, G. H. Sach, W. R. Staley, Henry Tinner and B. B. Wood. The output of these parties will be found in the statistical table of this county; their postoffice address is Warrensburg.

LAFAYETTE COUNTY.

Production, 256,761 tons.

Lafayette county, while showing a decreased production compared with former years, yet she has come to the front in rank, showing that other counties have suffered from loss of business to a greater extent than she has. In 1891 she ranked third in production with 352,603 tons to her credit. She held the same rank during 1892 and 1893, and went to second place in 1894 and still holds that rank. The average production of the county for the past five years has been 325,165 tons. The quantity and quality of the coal and her numerous mines will keep her in the forefront of our coal producing counties.

ALMA POSTOFFICE.

Cripple Creek Coal Mine.—Located west of Alma; coal seam the same as that which is mined at Corder and in other sections of Lafayette county. The mine is operated for the supply of local trade.

Weber Bros. are operating a mine on the Strathman's land, 1½ mile west of Alma. Mine only operated in fall and winter. The coal is consumed in the immediate vicinity.

M. W. Summers operates a mine southwest of Alma. Coal 18 inches thick and worked on the long-wall plan. Mine operated to supply home trade.

BLACKBURN POSTOFFICE.

Doc Katron operates a mine on his land south of Blackburn. Coal 18 inches thick and worked on the long-wall plan.

Thos. W. Hancock has a mine on his land and is operating it in fall and winter to supply the home consumption.

CORDER POSTOFFICE.

Corder Coal Company.—H. G. Smith, superintendent. This company owns two mines at Corder, but owing to the depressed condition of the coal trade, only one of them has been in operation during the past year. This mine has a shaft 90 feet deep, operated by steam-power. Venitlation is furnished by an 8-foot fan, which was making 110 revolutions per minute, and was passing 13,135 cubic feet of air around the workings in the same time. This current is divided into two sections, and the largest volume was found traveling south, where the greatest number of men were at work, and the only lack of air was found between the two platforms on the right south, which was remedied at once by putting up a door. The mine is well ventilated. The hoisting ropes were found in poor condition and condemned, and they were replaced by new ropes at once. April 22d I visited the mine again and found it in good condition. Coal 18 inches thick, and worked on the long-wall plan, paying 87½ cents per ton for mining. This mine has been in operation for over 18 years, and has been worked very extensively. The company contemplates making a connection with the other mine (which is a new one.) A shorter haul will in this way be secured through the new mine, and if the arrangement is agreed upon, it will be made ready for the coming fall and winter work. There were 70 men employed at date of first inspection, October 22d, and about 40 on my visit of April 22d. Coal is shipped over the Chicago & Alton railroad to Kansay City and other points.

J. H. DeBolt is operating a mine 1½ mile southwest of Corder, and the coal consumed in the surrounding country.

W. W. Morgan operates a mine near Corder to supply the local demand.

Salt Fork Coal Company.—Mine located one-fourth of a mile east of Corder, and connected with the Chicago & Alton railroad. Shaft 48 feet deep, equipped with horse-power apparatus for hoisting. Ventilation is produced by a furnace which is not well attended to, as I found on my first inspection of the mine, October 22, that too much indifference is displayed as to the time when the fire should be built in the morning. When the fire is allowed to die out or is dampened at night, circulation in the mine stops and black damp accumulates. This impurity the miner is compelled to inhale every morning before fresh air circulates around the workings, unless the fire is attended to in time to take it away before the miner enters the mine. April 22 I made another inspection and found the ventilation very fair. The escape-shaft had been completed and a ladder built for the men to go in and out of the mine. The rock had been blasted down on the south entry, and men were at work in the north and west entries blasting down rock, making the entries higher in order to work mules. Coal 18 inches, and worked on the long-wall plan with the movable face track in use. A foot of slate comes down with the coal which is used to build pack walls on the roadways to support the roof. Coal is shipped over the Chicago & Alton railroad and is consumed at Kansas City and local towns along the line. Found 25 and 18 men at work respectively on dates of inspection.

CONCORDIA POSTOFFICE.

There are several mines in the vicinity of Concordia, operating in the fall and winter to supply the home consumption. The seam of coal mined here is the same as that so extensively mined throughout the county. The thickness of the coal, mode of working and price paid for mining is the same as that of other mines in the county.

J. P. Hendricks operates a slope mine 5 miles west of Concordia, and is hauling the coal in wagons to the latter named place, where it is consumed.

A. F. Kreese.—Shaft 20 feet deep; horse-power; mine only operated in fall and winter to supply the home market.

Henry Bartels.—Mine located south of Concordia, and is operated to supply the local trade. There are other mines in the surroundings of Concordia operating on a small scale to supply the home market, but I had no time to visit them.

DOVER POSTOFFICE.

Dover Coal Company.—F. Davies, superintendent. This mine is located about a mile east of Dover station, and has a shipping connection with the Boonville & Lexington branch of the Missouri Pacific R. R. Drift opening; located on a high hill, about 100 feet above the Mo. P. R. R. track; the coal is let down the hill on an incline, the loaded car bringing up the empty one; ventilation is produced by a furnace, which was giving very good results at dates of inspections; coal from 18 to 24 inches in thickness, and worked on the long-wall plan, using the movable face track; this is the same seam as that which is worked at other mines in this county; thickness of the coal and the mode of mining, the same. The product is shipped over the Mo. P. R. R. to Kansas City and other points; found 30 men employed.

N. F. Fox is operating a mine two miles east of Dover. Shaft, 40 feet deep; horse-power. Coal 22 inches thick, and worked on the longwall plan. Mine operated to supply local trade.

ELMWOOD POSTOFFICE.

There are several small mines operating in the neighborhood of Elmwood in the winter season to supply the home market. J. Larve, H. E. Tyrrell, John Carmine, John Gogins and several others operated mines in the locality during the past winter. The output of these mines, with other information, will be found in the statistical table of this county.

HIGGINSVILLE POSTOFFICE.

Higginsville is the coal center of Lafayette county. It is located 12 miles east of Lexington and is surrounded by coal mines, all of which have shipping connections with the Chicago & Alton and the Missouri Pacific railroads, which two roads run through the coal field. There are about 18 mines in the surroundings of Higginsville, all of which are working the same seam of coal, which runs about the same in thickness and mined on the same method. Following is a description of each mine, with their location and condition as found at dates of inspection.

Bonanza Coal Co.—Wm. Brandaw, manager. Mine located 2 miles east of Higginsville, and connected with the Chicago & Alton railroad. Shaft 70 feet deep, using horse-power for hoisting. Mine ventilated by a furnace, which was giving very good results. On date of first inspection, October 25, I found great improvement had been made in and around the mine since my last visit. The old pit-top had been taken down and a new pit-top, scale-house and tipple built. The rock had been shot down in all the entries, and mules placed in the mine to pull out the coal in place of men. I inspected the mine again on the 20th of April, and found it in good condition, with the ventilation above the demands of the law. Coal shipped over the Chicago & Alton railroad to Kansas City and points west. Found 60 and 30 men at work respectively at dates of inspection.

Consolidated Farmers' Coal Co.—J. H. Campbell, manager, and Wm. I. Ballew, superintendent of mines. Four large coal companies of this county consolidated last July under the the above name, and are operating 7 mines west of Higginsville at present. All of these mines were inspected twice during the past year, and their condition found as follows:

Mine No. 1 (formerly known as the Excelsior mine) is located near the city limits on the west of Higginsville. The shaft is 70 feet deep;

equipped with steam-power for hoisting. Ventilation is produced by a 10-foot fan, which was making 60 revolutions per minute, and was forcing a large current of air around the face of the workings. The volume of air forced down the fan shaft traveled to the face of the south entry, where it splits to the east and west, passing along the face to the north entry, where the two currents meet, and thence returning to the up cast. The west cage was found in poor condition, and condemned, and it was replaced soon thereafter with a new cage. I visited the mine again on the 23rd of April, and found it closed down for the summer. Coal 18 inches thick, and worked on the long-wall plan, using the movable face track. Coal is taken away to market over the C. & A. R. R. Found 55 men employed.

Mine No. 2 (formerly known as the Windsor mine) is located 2 miles west of Higginsville and connected with the Chicago & Alton R. R. The shaft is 45 feet deep and operated by steam-power; ventilation is produced by a furnace which is giving very fair results considering the long distance the air has to travel. This mine has been in operation for a great number of years and has been worked very extensively. It is the oldest mine in this locality. There are two inlets for the air, and the quantity of air furnished was found to be above the requirements of the law, as the furnace was well attended to.

April 24 I visited the mine again, and found it well ventilated, with all safty appliances in good order; coal 18 inches thick and worked on the long-wall plan, using the moveable face track; coal carried to market over the C. & A. R. R. There were 55 and 40 men at work respectively at dates of inspections.

Mine No. 3 (formerly Stealey & Fowler) located 1½ mile southwest of Higginsville; shaft 17 feet deep; horse-power; ventilation furnished by a furnace; coal 18 inches thick and worked on the long-wall plan. Two inspections were made during the past year, and at each the mine was found in good condition; there were about 35 men employed.

Mine No. 4 (formerly Stealey & Fowler) is located two miles southwest of Higginsville. It is a shaft 20 feet deep, using horse-power for hoisting. On my first inspection of this mine I found the ventilation deficient, owing to small air-ways and the poor condition of the furnace, and the company was instructed to remedy the evil at once. On my second visit, April the 23d, I found that the pit-top, weigh-house, gin and the tipple had burned down, and had not been rebuilt. The mine was idle.

Mine No. 5 is a slope opening, and is leased to ten Bohemians, who mine and place the coal on the cars at a given price. Ventilation is furnished by a small furnace and was giving satisfaction. Another inspection was made April 24th and found the air good, with six men at work.

Mine No. 6, located one and a half mile southwest of Higginsville. Shaft 28 feet deep; equipped with good horse-power apparatus for hoisting. This is a new mine, sunk and opened out last winter, one-fourth of a mile east of mine No. 3, with which it has an underground connection. The same face of coal is worked as that of No. 3; and as mine No. 6 is much better equipped than No. 3, the latter will be abandoned and will be used as an escape-shaft. The coal will be taken out through No. 6.

Mine No. 7 (formerly known as the Rocky branch).—It is located two miles southwest of Higginsville. It is a drift opening and the coal is taken out by hand-power. On previous inspections of this mine a deficiency in the ventilation was found, and instructions were given to the company to enlarge the furnace and the smoke-stack, which was complied with, but the smoke-stack was not made large enough to admit of the required quantity of air, as complaints having been received since then of a deficiency in the ventilation. On my visit to the mine on the 24th of October, I found the furnace had been removed and enlarged, but as there was no fire in same, nor men at work, no test of air could be taken. And on my second visit, April 24, I found the mine closed down for the summer, owing to the small demand for coal. All the mines of this company are located on the Rocky branch switch and have connections with both the C. & A. and Mo. P. railways, over which the coal is taken to market. These mines are working the same seam of coal, which is about 18 inches in thickness and worked on the long-wall plan, using the moveable face track. Prices paid for mining is 87½ cents for ton in summer and $1 in winter for screened coal. Employment is given at all the mines to 250 men and boys.

Farmers' Coal Co.—Thos. Thomas, superintendent. Mine located 1 mile southwest of Higginsville, and has a shipping connection over the Rocky branch switch. Shaft 36 feet deep; horse-power. I made two inspections at this mine during the past year and found the mine in good condition on both visits. The furnace had been enlarged, airways cleaned and the entries made higher. Coal 18 inches thick and worked on the long-wall plan, using the movable face-track and paying 87½ cents per ton in summer and $1 in winter for screened coal. The product is shipped to market over the Missouri Pacific railroad, and is consumed at Kansas City. There were 50 and 30 men at work respectively at dates of inspection, October 24 and April 24.

Farmers' Mine No. 3.—This mine was formerly operated by Bruce & Noble, but was bought by the Farmers' Coal Company in July, 1894, which company operates it at present. It is a shaft 25 feet deep; horse-power used for hoisting. It is located 1½ mile southwest of Higginsville, and has shipping connections with the C. & A. and Mo. P. railways by a switch over the Rocky branch. On my first inspection of this mine last year I found that considerable improvement had been made since the new company took charge. Part of the shaft was retimbered, the entries were cleaned and made higher, a new furnace was built, the air-chamber made larger, a new smoke-stack built and 45 new pit-cars added to its equipment. Ventilation and other conditions of the mine were found good on both inspections, with about 30 men employed. Thickness of coal, mode of mining and other conditions are the same at this as that of other mines in this locality, and the same price paid for mining. The coal is taken to market over the Mo. P. railroad, and is consumed at Kansas City and other points.

Hagood Coal Company.—This mine is located one and a half mile southwest of Higginsville, and has shipping connections over the same coal switch as the other mines in this neighborhood. It is a shaft 20 feet deep; horse-power. Ventilation is produced by a furnace, which was giving good results at dates of inspection. Coal 18 inches thick and worked on the long-wall plan, using the movable face tracks, paying the same for mining as other mines in the locality, and shipping the coal to same market. From 15 to 20 men are employed.

Hughes & Son.—Mine located one mile west of Higginsville. Shaft 72 feet deep, operated by horse-power. Mine ventilated by a furnace which is rather small for the present capacity of the mine, and the company was instructed to have it enlarged. This mine has no shipping connections, and is only operated to supply home demand.

Henry Froeschle is operating a drift mine southeast of Higginsville, hauling the coal to Higginsville, where it is consumed.

Frank Kester operates a mine on Fritz Mienerhagen's land, which is located 3 miles southwest of Higginsville on the Warrensburg road. Shaft 80 feet deep; horse-power; thickness of coal, mode of mining and other conditions are the same at this mine as that of others in the locality. Mine only operated in fall and winter, and the product sold in the home market.

Mike Waskoski operates a drift mine west of Higginsville to supply home trade.

J. O. Malley is operating a slope mine on the Farmers' coal land, supplying the local trade.

Chas. E. Duncan is operating a mine east of Higginsville. Drift opening. Coal is taken away from the mine in wagons and consumed in the surrounding country.

Frank Coleman operates a drift mine and the product is consumed at Higginsville. There are other mines operated on a small scale in the surroundings of Higginsville which I had no time to visit.

LEXINGTON POSTOFFICE.

There are 20 mines, large and small, in the immediate vicinity of Lexington, of which 10 have shipping connections with Mo. P. R. R., while the other 10 are local mines, operated in the fall and winter to supply home market.

Bell and Greer.—Mine located south of Lexington. It has two drift openings, and ventilated by a small furnace, which is located at the south drift. Coal 18 inches thick, and worked on the long-wall plan. The coal is hauled away in wagons, and consumed at Lexington. From 10 to 15 men employed in fall and winter.

A. O. Malley is operating a mine near the above mentioned. Shaft 25 feet deep; horse-power. Mine only operated in the fall and winter to supply the local trade.

Keist & Riely.—Mine located south of Lexington. Shaft 60 feet deep; horse-power. Coal 18 inches thick, and worked on the long-wall plan. Ventilation produced by a small furnace. The output is taken away in wagons, and consumed at Lexington.

Keist operates a drift mine near Lexington.

Mike Hollwell.—Mine located at Lexington. Shaft 60 feet deep; horse-power. Mine only operated in fall and winter, and the product consumed in the immediate vicinity.

O. M. Guffin operates a mine on the east side of the Hollwell mine, and has an underground connection with the latter mine for escapement. This is a shaft 60 feet deep and operated by horse-power. It is a new mine, sunk and opened out last fall, and is only operated through the winter season to supply home trade.

Morrison Bros. are operating a mine on the west side of Lexington to supply the home trade.

S. Spruce operates a drift mine east of Lexington to supply home consumption.

John Boncum operates a drift mine west of Lexington to supply local trade.

James Roswell.—Mine located one mile from Lexington. Shaft 85 feet deep and operated by horse-power. This is a new mine, sunk and opened out in the summer of 1894. Size of shaft, 12 feet long by

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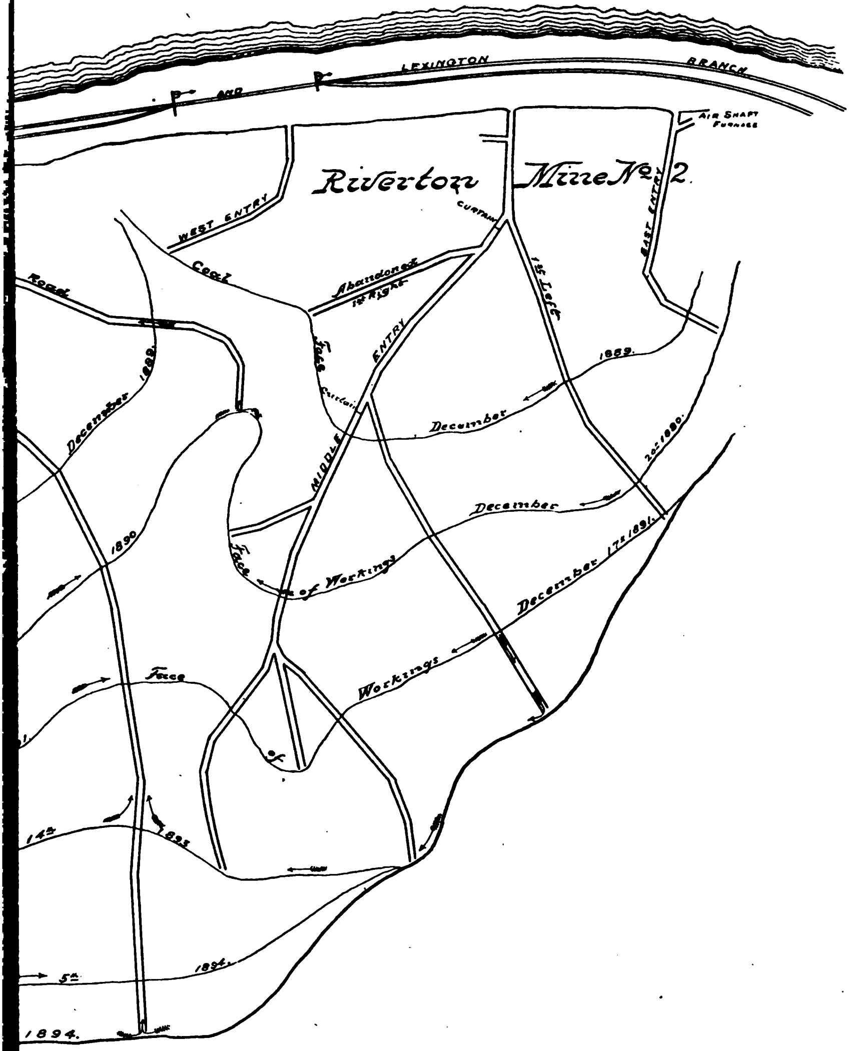
6 feet wide, timbered with 2½-inch timber. The head gear, top-h and the hoisting apparatus are well constructed, and would do c to a commercial mine. Coal 22 inches thick and worked on the wall plan. The product of the mine is consumed at Lexington vicinity.

Thos. Walton.—Mine located near the river on the east si Lexington, and is called one of the city mines. Drift openin ventilated by a furnace, which is situated on the west side ne entrance to the mine. A connection was being made between thi the Spruce mine on the west, where the air enters. Coal 20 i thick, and worked on the long-wall plan, and consumed at the From 6 to 12 men are employed.

The Clark mine is located on the east side of the Walton and is a drift opening, working the same seam and paying the price for mining as the other mines in this locality, and operat supply the home demand.

Lafayette Coal Company.—W. F. Kerdoff superintendent. located 5 miles east of Lexington, and connected with the Lexi & Boonville branch of the Missouri Pacific railway. Drift ope and mine ventilated by a furnace, which was giving good resul dates of inspections, October 26 and April 27. The air enter mine through a drift on the east side, passing around the working returning to the furnace. Coal 20 inches thick, and worked o long-wall plan. The coal is shipped over the Missouri Pacific rai to Kansas City and points west, where it is consumed. There we and 30 men at work respectively at dates of inspection.

Lexington Coal Co.—Major R. M. McDowell, general manager B. F. Wiley, superintendent. The mines of this company are lo along the river, east and west of Lexington, and connected wit Missouri Pacific railway by switches. The mines are all workin same seam of coal, which runs from 18 to 24 inches in thickness mined on the long-wall plan. The coal is underlaid by a soft fire mining and is overlaid by a good rock roof, which is well adapte the long-wall system of mining, no timber being used. Howev foot of slate is mined and comes down with the coal, which is us build pack-walls along the roadways. The movable face-track is here in all the mines, which is very convenient and a decided hel the miner in loading his coal. The product of the mines is carrie market over the Mo. P. R. R., and consumed at Kansas City and p west and northwest. The railroad company uses a large amou this product for its engines, as the reputation of the coal for ma


LEXINGTON
BRANCH
AND
AIR SHAFT
FURNACE
Riverton Mine No. 2
WEST ENTRY
CURTAIN
EAST ENTRY
Road
Coal
Abandoned
1st Right
1st Left
Face
Curtain
ENTRY
MIDDLE
1889.
December
December 1889.
20th 1890.
December
Face of Workings
December 17th 1891.
Workings
1890
Face
of
1.
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1894.

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steam is excellent. The mines are practically operated and are kept in good condition. Following is a description and location of each mine:

Riverton No. 1.—This mine is located 2 miles east of Lexington. Drift opening; main entry running south, and cross entries east and west, all connected and worked in a circle with about 7000 feet of face all abreast. An underground connection has been made between this mine and the McDowell shaft on the west, and the mine is ventilated on the east side by a furnace, which is located near the entrance to the drift on the east, and the west side is ventilated by the aid of a fan situated at the McDowell shaft. The air entering at the mouth of the drift and traveling to the face of the south entry where it is divided. The mine is very extensively worked and is well ventilated. Two doors are hung in each entry and are set so far apart that in the passing of trips one door is always closed before the other is opened. All the doors are made three inches thick, properly hung, and so constructed and arranged as to close automatically in the direction taken by the air-current. The roadways are high, wide, clean and dry, and the entire mine found in first-class condition at dates of inspection. From 125 to 150 men employed.

McDowell shaft.—Peter Nord, foreman. This mine is located 1 mile east of Lexington. It is 55 feet deep, and is operated by steam-power for hoisting, draining and ventilating the mine. I inspected this mine October 26th and found it in good condition. The ventilation (which is produced by a 10-foot fan) was found above the requirments of the law, and the safety appliances in good order. This is a large and very extensive mine, which has opening enough to employ 300 men at one time, but owing to the very small demand for coal, very little work, comparatively, was done here during the past year. All of the entries are high, wide, clean and dry, and all doors made of three thicknesses of boards, properly hung and kept in good repair, and the mine generally considered in good condition. There were 105 men employed at date of my inspection. I visited the mine again in April and found it had been closed down for the summer, and the men put to work at the Riverton mine.

The Seawell mine is located 1 mile west of Lexington and connected with the Mo. P. railroad. Drift opening, and ventilated by a furnace. The thickness and character of the coal, mode of working and price paid for mining, is the same as that of other mines around Lexington. Employment is furnished 30 men, and the product is shipped over the Mo. P. railroad.

Graddy Mine.—Located 2½ miles west of Lexington. Drift opening; ventilation is produced by a furnace, which was found inadequate to properly ventilate under the existing conditions. The mine has been worked on a very extensive scale, and the large space worked out and abandoned, affords a harbor for the accumulation of an immense amount of the impurities. This, in connection with the fact that the ventilative current was allowed to make the rounds of the mine in one continuous and undivided current, through small and contracted airways, over-pools of stagnant water absorbing more and more poison as it comes in contact with the decaying materials until it was unfit for inhalation. Calling the attention of Mr. Wiley, the superintendent, to these facts, he said that an air-shaft would be sunk at the face of the south entry, which would be used as a down-cast, and a division of the air would be made at the bottom of it, so as to give a separate current to the east and west entries, which will be satisfactory. The coal at this mine is undermined by an electric plant, of which particulars have been given in previous reports. From 65 to 75 men employed.

Hartman mine is located one mile west of Wellington and connected with the Missouri Pacific railroad. It is a shaft 35 feet deep; horse-power. This mine has not been in operation during the year, or at least I found it idle at dates of my inspection of the mines of Lafayette county. This concludes the mines of the Lexington Coal Company, the Hackett mine having been abandoned since the summer of 1894.

Henry Macey.—Mine located two miles west of Lexington, and connected with the Lexington & Kansas City branch of the Missouri Pacific railroad. Drift opening and ventilated by a furnace, which was giving good results at date of inspection, but the air was found weak on the east side for the want of a door, which the foreman promised to put up at once. I visited the mine again the first week in May and found it temporarily closed down. Thickness and character of the coal, mode of mining and price paid for mining are the same as that of other mines in this locality. About 40 men employed, and the output is shipped to Kansas City where it is consumed.

J. C. McGrew owns and is operating two mines 4 miles west of Lexington. Both mines have shipping connection with Mo. P. R. R. Drift openings with an underground connection between the two, and working the same coal face, and ventilated by the same fan, and for all practical purposes may be considered as one mine with two openings. I made two inspections of these mines during the past year, and found them well ventilated and in good condition. Two doors are set on main entries, so that one or the other remains closed while the other is open. They are made of 3 thickness of boards, each an inch thick, are properly hung, shut of themselves after being opened in the direction of the air-current. The roof has been blasted down on all the entries, and mules are now taking out the coal in place of men. Coal 18 inches thick and worked on the long-wall plan, using the movable face track. A foot of slate comes down with the coal, which is used to build pack-walls along the roadways, as no timber is used. The mines are dry, with good, high roadways, and in good condition. The coal is shipped to market over the Mo. P. R. R. to Kansas City and other points. The mines give employment to about 150 men in the winter months, and about half that number in summer.

The Southwestern Coal Co.—M. W. Serat, president. Mine located at Lexington and connected with the Missouri Pacific R. R. by a switch. Shaft 125 feet deep and equipped with first-class machinery for hoisting. Ventilation is produced by a 10-foot fan, and the mine is well ventilated. An escapement-shaft has been sunk during the year which has been partitioned off into two compartments, one for the air to pass through, and a stairway has been built in the other for the men to escape is case of accident to hoisting-shaft. The fan has been removed from the end of hoisting-shaft and set at the escape-shaft. I made two inspections of this mine during the past year, and found the ventilation good on both visits and the safety appliances in good repair. The work was being driven toward an old and abandoned mine which was known to be full of water. The company was requested to keep a bore-hole 20 feet ahead of the face of the coal in all directions, which they promptly complied with. On the 6th of July of the present year Mr. Serat kindly informed this Department that the drill went through the pillar into the old workings, that the water was under perfect control, the pump able to handle it with ease, and that the face of the coal is getting perfectly dry. This is a good mine, practically opened and equipped with all the modern improvements. The company deserves success for the enterprise it has displayed and the large amount of money which it has expended in the effort to make it a first-class mine. Coal 18 inches thick and worked on the long-wall plan, using the movable face track. Coal shipped over the Missouri Pacific R. R. to Kansas City and points west. About 40 men employed.

MAYVIEW POSTOFFICE.

Mathews Coal Co.—W. B. Wilson, superintendent. This company owns two mines near Mayview, but owing to the slackness of the coal trade only one of the mines has been operating the past year.

Mine No. 1 is located 1 mile east of the station, and is connected with the C. & A. R. R.; shaft 105 feet deep; operated by steam-power for hoisting; ventilation is produced by a furnace and was giving good results at dates of inspection; coal 18 inches thick and worked on the long-wall plan, using the moveable face track; coal shipped over the C. & A. R. R., and is consumed at Kansas City and points west and north. About 65 men employed in winter and 30 in summer.

Mine No. 2 is located one-fourth of a mile west of station, and is working the same seam of coal as that which is worked at other mines in this county, but as the mine has not been operating during the past year, no inspection has been made.

J. J. Norfleet is operating a local mine near Mayview to supply home trade.

NAPOLEON POSTOFFICE.

Brown & Bowers.—James Hoye, superintendent. Mine located 1 mile east of Napoleon and connected with the Mo. P. R. R.; shaft 60 feet deep; steam-power and ventilated by a furnace; thickness of coal, mode of working and price paid for mining is the same as that of other mines in this county; from 30 to 40 men employed, and the product is transported to market over the Lexington & Kansas City branch of the Missouri Pacific railroad to Kansas City and other points.

WAVERLY POSTOFFICE.

Waverly Coal Co.—Mine located east of the depot, and is connected with the Boonville and Lexington branch of the Mo. P. R. R. Shaft 105 feet deep, and hoisting by steam-power; ventilation is produced by a fire-basket hung in the bottom of the air-shaft, which is inadequate to furnish the required quantity of air in the mine. The company was notified that it must erect a furnace or supply a fan to produce the ventilation. Coal 44 inches thick and worked on the double-entry room and pillar plan, shooting the coal off the solid and paying for its mining 60 cents per ton for unscreened coal. The roof which overlays the coal is a hard slate, requiring very little timber to keep it secured. Coal is shipped over the the Mo. P. R. R., and is consumed at local towns along the line. From 10 to 15 men employed.

The Francisco mine is located one mile west of station, and has a shipping connection with the same branch of railroad as the Waverly mine. This mine was closed down by instructions from this office a year ago for not complying with the mining law in regard to the sinking of an escapement-shaft, and has remained idle ever since.

WELLINGTON POSTOFFICE.

Andrew Carter & Son are operating a mine 1 mile east of Wellington to supply the local trade.

J. M. Seawell & Co.—Mine located 1 mile west of Wellington; shaft 45 feet deep; horse-power; ventilation is furnished by a furnace and was giving good results; safety-gates have been put in at shaft opening and new ropes put in place of the old ones which were condemned on my former visit. Safety-catches were also put on cages, and the partition of the air-chamber had been made air-tight. Thickness of coal, mode of working and price paid for mining are the same as that at other mines in this county. Mine has a shipping connection with the L. & K. C. branch of the Mo. Pac. R. R., over which road the coal is taken to market. About 25 men employed.

Richard O'Neal operates a local drift mine at Wellington in the winter months to supply the home trade.

Wellington Coal Co.—Harry Blee, superintendent. Mine located at Wellington, and connected with the L. & K. C. branch of the Mo. Pac. R. R. Shaft 38 feet deep, and operated by horse-power. This mine was formerly operated by Colonel McClelland, but was leased last year to Mr. Blee, who operates it at present. It is ventilated by a furnace, and worked on the long-wall plan, paying the same for mining as other mines in the locality. There were 15 men employed, and the product is shipped westward.

LINN COUNTY.

Production, 96,379 tons.

Linn county shows an increase in her coal production for the year just closed of 35 per cent over the year previous. The total production was 96,379 tons this year, as against 61,807 tons for the year preceding, showing the increased tonnage to be 34,572 tons. Six mines were operated during the past year, a description of which, together with a statement as to their condition at dates of inspection, will be found as follows:

BROOKFIELD POSTOFFICE.

Brookfield Coal Company.—B. F. Smithers, president, and Sol. John, superintendent. Mine located ½ mile east of Brookfield, near the Hannibal & St. Joseph railroad, but has no shipping connections with that road. The shaft is 155 feet deep, and equipped with steam-power for hoisting. Ventilation is produced by a furnace which had been built since my former visit. I first inspected the mine September the 19th and found it fairly ventilated and in fair condition, with 22 men at work. I visited the mine again March 16, and found it in good condition. Coal about 28 inches in thickness, but there is a layer of black-jack in the center of the coal which has to be thrown away. The roof is a mixture of slate and soapstone, which is very friable and requires considerable timber to keep it secured. Mine practically dry and worked on the long-wall plan. The product is consumed in Brookfield and vicinity.

Bottomly Mine.—Located 1½ mile east of Brookfield. Shaft 150 feet deep. Horse-power. This is a very rickety old mine; the shaft timber and hoisting apparatus are old, rotten and very dilapitated, and were condemned on my last visit. Coal 28 inches thick, and worked on the long-wall plan. There were 8 men at work, and the product consumed at Brookfield and surroundings.

Clark mine, located 2 miles east of Brookfield and one-fourth of a mile south of the Bottomly mine. Shaft 140 feet deep; horse-power. I inspected this mine on the 19th of September and found it in a very poor condition, without any ventilation, no air-ways open to the passage of air. I considered the mine as unfit and unsafe for the miners to work in, and ordered the necessary improvements to be made or the mine closed. Coal 28 inches thick, and worked on the long-wall plan. Employment given to 7 men. The coal is consumed at Brookfield and vicinity.

Bernard Shafer.—Mine located 3 miles northeast of Brookfield. Shaft 155 feet deep; hoisting by horse-power. Coal 26 inches thick, and worked on the long-wall plan. Mine only operated in fall and winter. From 5 to 10 men employed. The coal is consumed at Brookfield and surrounding country.

MARCELINE POSTOFFICE.

Marceline Coal Company.—Joseph Hemming, superintendent, and John Burns, foreman. Mine located at Marceline and connected with the Santa Fe railroad by a switch, shaft 187 feet deep and operated with first-class machinery for hoisting. Ventilation is produced by a 14-foot fan, which was making 48 revolutions per minute, and was passing 37,830 cubic feet of air around the workings in the same time. Tests taken on the return air-course at bottom of up-cast. This volume of air is conducted around the workings in four different currents—the main current travels the north and south entries to face of workings, and then divided to the east and west sides, returning from the west to the up-cast over an air crossing. The system of ventilation at this mine is very practical, and is one of the best ventilated mines in the State. A permanent air-course is carried on with the face of the workings at each side of the shaft 6 feet high and 7 feet wide for the return of the air. I found 225 men at work at date of first inspection, September 20. I visited the mine again March 15 and found it in good condition with 175 men at work. Coal 28 inches thick, and worked on the long-wall plan. One dollar per ton is paid for mining. The roof is a hard slate, and stands well in long-wall work. The coal is underlaid by fire-clay, which is rather hard to pick, and a weak-kneed miner had better keep away. The product is consumed by the Santa Fe Railway Company on its engines.

Landreth & Son are operating a mine near Marceline. Shaft 130 feet deep; horse-power. A new shaft was sunk here last year, which will be used as a hoisting-shaft; the old one will be used as an escapement. Coal 28 inches thick and worked on the long-wall plan. Coal consumed at Marceline.

MACON COUNTY.

Production, 539,120 tons.

This is the banner county of the State in coal production. For the past five years she has been at the head of the procession with an average of 595,722 tons. The year 1893 was the period of its largest output, which amounted to 788,563 tons. With its extensive mines and large coal area, it only awaits the demand to equal or excel all previous records.

ARDMORE POSTOFFICE.

Kansas & Texas Coal Co.—B. F. Hobart, president; E. J. Crandell, general manager, and W. E. Merlin, superintendent. This company owns several mines in the vicinity of Ardmore, but owing to the small demand for coal, but one of the mines has been in operation throughtout the whole year. Two of the mines were operated for a few months in the winter season.

Mine No. 33.—George Burge, foreman. This mine is entered by a slope, and the coal is brought to the surface by the cable-rope system, which is very economical as well as a very rapid method of taking out coal, and has proven very satisfactory to the company. This mine has been opened out very extensively and has a large output, and should the demand for coal justify the company to equip it for a large output, as much as 2000 tons per day could be mined and handled here. The mine is ventilated by a 12-foot fan, which was making 80 revolutions per minute at date of first inspection, September 7, and was passing 23,276 cubic feet of air, which was traveling around in two currents. All the work on the east side had been abandoned outside of the 7th east. One current of air entered that entry and passing around, ventilating 35 men, returning over the 8th east, and was conducted to the upcast over an air crossing. The other current was conducted around the other entries, in which about 100 men were at work, and while the quantity of air was found sufficient to comply with the requirements of the law, yet the quality was unfit for inhalation, especially in the afternoon after the burning of so much powder. January 11 I made another inspection of this mine and found it in a very fair condition; but as the miners were not at work, no test of the air was taken. I visited the mine again on the 9th of July and made another careful inspection of the same. I observed on this visit that the cable had been extended 1000 feet, and two new overcasts had been erected as suggested by me on a former visit. The air is now conducted around the mine in four currents, one current ventilating the 7th and 8th east entries, another the 9th and 10th east entries, and still another the 11th and 12th east entries; and each one of these currents returns to the upcast on leaving the entries. The 4th current ventilates the 13th, 14th, 15th and 16th east, the two main south and 11th and 12th entries, which overloads the last current to such an extent that another split has been recommended. Measurement of the air was taken at this visit, and 23,730 cubic feet of air found passing on the intake. Coal will average about 4 feet in thickness, and is overlaid by a mixture of slate and soapstone roof, which is soft and very friable, requiring considerable timber to keep it secured. The mine is worked on the room and pillar double-entry plan, and the coal mined by blasting it off the solid. From 150 to 175 men employed. The pay for mining is 50 cents per ton for unscreened coal.

Mine No. 48.—Shaft 60 feet deep; equipped with first-class machinery for hoisiting. I visited this mine on September 7, but found only 4 men at work driving air-courses and doing some repairs. No inspection was made. However, on the 11th of January I visited the mine again and made a careful examination of every part of same. I found the ventilation very good all over the mine, except in the first and second northwest entries, where a deficiency was found, and the management was notified to have it remedied at once. The general condition of the mine was greatly improved since my former inspection; ditches and sumps had been made and the roadways corduroyed, making the entries clean and dry. The cross-cuts were driven entirely too small, and the same were found very much obstructed by dirt. The management was also notified of this, with instructions to have them enlarged. This is the same seam of coal as that of mine No. 33, the method of mining the same, and same price paid for mining. This mine was only worked a few months during the past year, as on my tour of inspection in July the mine was closed down and no inspection made.

Mine No. 69.—Drift opening; mine located on the east side of East Fork creek. This is a new mine opened out last year, but very little work has been done, owing to the very small demand for coal. It is operated on the same method as that of other mines in this county and the same price is paid for mining. The product of these mines is hauled over a switch for 4 miles and is taken to market over the Wabash railroad.

BEVIER POSTOFFICE.

The Kansas & Texas Coal Co. own and are operating two mines in the vicinity of Bevier, both of which have shipping connection with the Hannibal & St. Joe R. R. by spur switches, and both the mines are under the same supervision and management as the Ardmore mines.

Mine No. 43 is located 1½ mile northwest of Bevier. It is a shaft 140 feet deep, equipped with first-class machinery. The mine is ventilated by two fans, one of which is located near the hoisting-shaft, and furnishes the ventilation to the north part, while the other fan (which is located about 1500 feet south of hoisting-shaft) ventilates the south side of the mine. I made my first inspection of the mines of Macon county last year in the month of August, but as this mine was not in operation at that time no inspection was made. On my second inspection I found the mine in operation and made a careful examination of it on the 8th of January. On entering the mine I found air enough traveling the south entry between the down-cast and up-cast shaft to ventilate 500 men, but on further examination found that very little of this current was conducted to the working place of the miners. On entering the 5th east I found a deficiency at every point. At the point where the first north entry from the 5th east cuts through to the 4th east, the opening was not large enough to admit the passing of a sufficient amount of air to properly ventilate the 1st north entry, and I ordered the opening enlarged. The 2d north entry from the 5th east was found in a very poor condition, there were 12 men working on this entry at this date and not air enough passing through to keep a bird in good health. The canvas doors at the mouth of the rooms which were intended to turn the air were no better than strings.

As I have stated in previous reports, the mines of this company are as well equipped with machinery and ventilating appliances as any mines in this or any other state in the Union. The fans are of modern construction, well set and built, and are doing effective work wherever the air-ways are kept large and clean, and I always find Mr. E. J. Crandall, the general manager, ready and willing at all times to comply with the laws regulating coal mines in this State. But there are subordinates at the mines of this company who are not very prompt in observing the law. The manner in which ventilation is provided and the air-current distributed in the mine plainly indicates a lack of the necessary knowledge required in such matters, and the carelessness displayed is on a par with their want of experience. Seldom do they visit the underground work where they become familiar with the actual condition of the mine and acquaint themselves with the necessity and the remedy for existing evils, but seemingly prefer to remain ignorant of the injury being done to the miner and mine, with but one idea and aim, and that is, that they may be credited with operating the mine economically.

For instance, at this mine during the past year the company sunk a new air-shaft 1500 feet south of main shaft, and erected a 12-foot fan to ventilate the south side of the mine. This fan was running at a speed of 70 revolutions per minute, and was passing the largest volume of air of any mine in the State over the south entry, but on examination I found a deficiency in the ventilation in every part of the mine where the miners were at work, as the ventilative current was coming down one shaft, traveling over the south entry, giving plenty of air to the cable, ropes and pit-cars, and going out at the other shaft, and not enough air could be found on the east entries (where nearly all the men were at work) to turn the hands of the meter. Now this superintendent thought that he had a well ventilated mine because there was a large current of air passing on the main entry at the pit-bottom (about the only place he visits), while the miners were suffering for want of that current all over the mine. If I fully exercised my authority and sworn duty at this inspection, I should have stopped the work on the fifth east, as the third north off the fifth east was no better than the first and second north. I traveled the air-ways until I came to the eighth east entry. There I found them nearly closed, having hard work to crawl through; and at this point I ordered a cross-cut cleaned out between the seventh and eighth east entries, to permit more air to pass through the east side. I found the roof caved in on main air-courses from 10 to 15 feet high, and the mine showed its great neglect and very bad management. The north side was found better ventilated than the south side, but the doors were all in a rickety condition and much of the air returning to the up-cast without having come in contact with the miners in the east entries. Complaints were made by the miners that they fail to get props when ordered which is a very serious one; and I demanded the prompt attention of the superintendent of the mine to this complaint, as well as to the conditions of the mine, stating that I would revisit it in twenty days, and would expect to find its condition improved.

Shortly after this inspection the mine was temporarily closed and did not start during our last fiscal year, hence no other inspection was made; coal about 4 feet thick and worked on the double-entry pillar and room plan, and mining paid for at the rate of 50 cents per ton for unscreened coal. The roof is soft and friable, requiring great care and a large amount of timber to keep it secured. The coal is shipped to market over the H. & St. Joe R. R. to Kansas City, St. Joe and points north and west. There were nearly 200 employes at this mine at date of inspections.

Mine No. 46.—S. Michaels, foreman. Mine located 2 miles southeast of Bevier; shaft 170 feet deep, with equipment consisting of the latest improved machinery, all of which is well erected and kept in good working order. This is undoubtedly the best and most elaborate plant in Missouri and is excelled by very few, if any, in any other state. The mine is ventilated by a 12-foot fan, the same being located at the escapement-shaft and about 150 feet west of main shaft, forcing and exhausting alternatively in winter and summer, and runs at a speed of about 80 revolutions per minute. Owing to the extensiveness of this mine with its large output, four inspections have been made during the past year; first inspection was made on the 6th of August, 1894, and the mine was found in a very fair condition with the ventilation up to the requirements of the law. Tests of the air were taken on both sides of the shaft, when 13,730 cubic feet was found passing on the west side, and 14,440 on the east side, and the currents fairly distsibuted around the working places of the miners. On the 7th of January I made another inspection and found that the mine had been somewhat neglected by permitting the air-ways to fill up with falls and dirt. A large fall of rock was found on the return air-course from the 6th north to the 7th south, which obstructed the ventilative current all over this side of the shaft, as the air is conducted around in one current. The doors on the south entries were found in poor condition and a large amount of the air was returning to the up-cast before it reached any of the miners. The superintendent was notified of this and was requested to remedy same at once. The east side was found in a little better condition than the west side; the doors were found in bad condition and several places in the air-ways needed cleaning. On my regular tour of inspection of the mines of Macon county, I made another inspection on the 4th of June. The fan was running at a speed of 85 revolutions per minute at this date, and was passing 17,630 cubic feet of air on the west side; measurement was taken at the foot of the up-cast.

On further investigation I found that only 5000 cubic feet of this volume was conducted around the 5th and 6th north entries, where I found 82 men at work. This test was taken on the return of the air on the 6th north, where the whole of the current was intended to travel, thus showing the enormous leakage of 12,630 cubic feet of air, which was coming down one shaft and up the other, without material benefit to anyone. The 4th south entry upon which the air was returning had taken a creep and closed, causing the air to screen through old workings, retarding and obstructing its progress on its return to the fan and causing the deficiency mentioned. No effort was made to better the condition, and yet the 82 men that were working in the 5th and 6th north entries were suffering for the want of air every day. All the doors were found in a rickety condition and poorly hung; in fact, there is not a properly hung door in the mine. The attention of the superintendent was again called to the deficiency, and he requested to clean up the air-ways, repair the doors and furnish the men in the above mentioned entries the required amount of air. I also found men turning off rooms ahead of cross-cuts in six different entries in direct violation of law, and the men were nearly smothered with powder smoke for the want of air. In fact, I found the mine in a worse condition on this inspection than at any time previous. On the 20th of same month a letter was received by this Department from the miners of mine No. 46, stating, amongst other things, that no effort had been made by the management of that mine to improve the ventilation since my visit of the 4th; that the air was getting worse every day, and imploring me for humanity sake to come back as soon as possible to look after it. Having every reason to believe the complaint a reasonable and true one, knowing as I did the condition of the mine from a recent inspection, as well as an acquaintance with the inability of the superintendent to ventilate the mine properly, I returned again on the 27th and made another inspection, and found it as my informant stated; in fact, it was in a worse condition than ever before, and the following letter was penned to Mr. E. J. Crandall, general manager, which explains itself:

JEFFERSON CITY, Mo., July 1, 1895.

E. J. Crandall, Esq., Gen. Mgr. Kansas & Texas Coal Co., St Louis Mo.:

Dear Sir—Owing to a complaint received from the miners at mine No. 46, I made another inspection of the mine June 27, and found as on my former visit of

June 4, a deficiency in the ventilation in various parts of the mine. In the three sets of entries turned off the 5th north, on the west side of shaft, and the 5th and 6th north entries, I found 88 men working and only 5800 cubic feet of air passing (test taken on the 6th north). I found the cross-cut between the 1st and 2d east choked up with dirt and 2 men cleaning it up at date of my visit. This cross-cut is entirely too small, even though it was cleaned up. All cross-cuts should be 6 feet wide and 5 feet high. I also found a curtain hanging between the 5th and 6th east on the 5th north in place of a wooden door; there were 16 men found at work here and very little air found in circulation. I examined these places again in the afternoon, and, with the lack of air as mentioned, in connection with the combustion of so much powder, I found the air unfit to breathe. I called your superintendent's attention to this on June the 4th, and in the meantime no improvement has been made. The law prohibiting more than 50 men working in one current of air is now in force, and yet you have 119 miners at work in one current on the west side of mine No. 46. I am entirely willing to grant you reasonable time in which to put your air-course through from the 4th north to the 1st east off the 5th north. I hope, however, you will see that the required amount of air is furnished the men working in the entries mentioned. I found a curtain in place of a wooden door between the 9th and 10th south entries off the 4th east, on east side of shaft, and this curtain was so torn by passing trips as to make it useless. There are 24 men working in these two entries, and as the entries have been worked about three months, and the men suffering all that time, I trust you will cause a stop to be put to this neglect. I found men on the entry at 2 o'clock waiting for the smoke to clear so that they could go to work. Hoping you will give these matters your immediate attention, I remain, Yours truly,

CHAS. EVANS,
State Mine Inspector.

To the above Mr. Crandall kindly replied as follows :

McALLISTER, I. T., July 7, 1895.

Mr. Charles Evans, State Mine Inspector, Jefferson City, Mo.:

Dear Sir—I am just in receipt of your letter of the 1st inst. mailed from Jefferson City on the 3d, the same having been mailed to me here from our general office in St. Louis. I note what you say about mine No. 46, at Bevier, Mo., and in reply desire to say that I have written Mr. Merlin today, sending him a copy of your letter, and have specially directed him to have the work done and changes made exactly in accordance with the instructions contained in your letter of the 1st inst. I have called his attention to the three sets of entries turned off the 5th north on the west side of shaft, and the 5th and 6th north entries, where you found insufficient air; also, the cross-cuts, between the 1st and 2d east, choked up with dirt, and have ordered them made proper size. I have directed that all curtains be replaced by wooden doors where directed by you. I have also instructed him to start at once, if he has not already, the air-course referred to from the 4th north to the first east off the 5th north, and will see that the required amount of air is furnished in every part of the mine. The wooden doors will be put in place of the curtains between the 9th and 10th south entries off the 4th east of the east side of the shaft.

All matters referred to in your letter will receive prompt attention. I shall get through here so as to be in St. Louis one week from today, and will then make it my personal business to see that mine No. 46 is put right, and in accordance with the requirements as stated in your letter. Very truly,

E. J. CRANDALL, General Manager.

It will be seen by the above letter that it is the desire of the higher officials of this company to comply with the mining law, and have their mines kept in good sanitary condition. But it is a grievous mistake to place an inexperienced, impractical and incompetent man in charge of the underground workings of a mine. Such a man is of necessity an unnecessary evil, and his efforts cannot prove other than a failure, as the condition of this mine and No. 43 will show. Money has been liberally expended by this company to equip its mines with modern and improved ventilating appliances, and under the supervision of a practical mine manager, the mine could be made one of the best ventilated mines in the State, in place of one of the worst, as I found it at date of my inspection, June 27. Coal runs very irregular and faulty, and the roof is soft and friable, requiring great care and attention to keep it secured. The entries are high and wide, but much neglected as regards cleanliness. It is operated on the double-entry room and pillar plan, and the coal is loosened by blasting it off the solid. There are 200 men and boys employed, and the product is shipped to market over the Hannibal & St. Joe railroad.

Loomis Coal Co.—R. G. Rombauer, receiver; John Kilholland, superintendent. This company has been operating three mines at Bevier during the past year, but owing to depression in the coal trade the output of two of the mines was rather limited.

Mine No. 1 is located at Bevier, close to the depot. Shaft 60 feet deep; equipped with machinery for hoisting. This mine has been in operation over 35 years, and a very large amount of coal has been taken out during that time, but the output has been gradually decreasing of late, and on the 1st of last January, the company notified this Department that the mine had been worked out and abandoned.

Mine No. 4.—This is a shaft 60 feet deep and equipped with very good machinery. Ventilation is produced by a 12-foot fan, which is poorly set, and which was found expending considerable power and giving very poor results, owing to the long distance that the air has to travel through small and contracted air-ways. I made four inspections of this mine during the past year. First inspection was made on the 7th of August, and deficiency in the ventilation was found on the north side. The fan was making 56 revolutions per minute and was passing 4860 cubic feet of air in same time. This volume was circulating in one undivided current, passing through old, abandoned workings, coming in contact with the organic matter thrown off, and the combustion of so much powder rendered it poisonous for its miners to breathe. Instructions were given to the receiver (who recently took charge) to remedy these evils at once. August 25 I returned to the mine again and found that very little had been done toward improving its condition. The fan at this date was making 63 revolutions per minute, and I found 7000 cubic feet of air passing on the north side, where there were 63 men at work. I requested that the speed of the fan be increased to 80 revolutions per minute and maintained at that speed while the mine was being operated. The company having failed to comply with my instructions, and the miners having informed this office of the fact, the following letter was sent to the company:

JEFFERSON CITY, Sept. 29, 1894.

Loomis Coal Co., Bevier, Mo.:

Gentlemen—Complaints are being received at this office concerning defective ventilation at mine No. 4 and representing the men as suffering much from bad air. This is not at all surprising to me, and I have every reason for believing the complaint a reasonable and just one. At no time have I found enough air traveling in mine No. 4 to meet the demands of the law in the matter. When I call to mind occasions when inspecting the mine that I found the fan making as low as 50 revolutions per minute, it is not difficult to believe that the men do suffer from foul air.

I have submitted with the management of this mine to the limit, and upon my next visit, which will be in the near future, if I do not find the mine in proper condition I shall resort to the law for a remedy. Trusting you will do that which the law and the situation demands, I am,

Respectfully,
CHARLES EVANS,
State Mine Inspector.

Being engaged inspecting mines in other parts of the State, I did not return to Bevier until January, and on the 7th of that month I made another inspection and found the mine in a worse condition than on any former visit, and the following letter was sent to the receiver, which explains itself:

JEFFERSON CITY, MO., Jan. 15, 1895.

R. G. Rombaur, Receiver of the Loomis Coal Co.:

Dear Sir—I made a careful inspection of Mine No. 4 (of which you are the receiver) on the 8th inst. and found the ventilation on the north side of same very defective. In fact, where the men were engaged in drawing pillars there was no air traveling The fan was making only 47 revolutions per minute and removing but 3320 cubic feet of air in same length of time (test was made on main air-course before there was any chance for leakage). No trapper was employed to look after the door on the main north entry and it had become so battered by passing trips as to fail to close tight, hence the air was allowed in considerable volume to return to the up-cast before reaching any of the miners. I found the ventilation in worse condition on this visit than upon any previous inspection.

I hereby condemn the mine as operating contrary to law and in violation of section 7064, R. S. of the mining law, and order it closed until provision is made to supply the required quantity of air demanded by the law. I expect to again visit the mine in about 20 days from date and hope to find my instructions complied with, otherwise I shall be forced, much against my wishes, to resort to extream measures.

I found mine No. 7 in excellent condition with a full supply of fresh air being circulated in every part of the mine. The roadways are high and dry and well kept up, and I cannot say too much in commendation of Mr. Opie's care and management of the mine. It affords me pleasure to inform you that I regard mine No. 7 one of the best, if not the best in the State, and expect in my next annual report to give considerable space to its condition. You will please have bonnets put on the south cage and safety-gates on the pit-top, as required by Sec. 7066, R. S. at once.

I am of the opinion that the escape-shafts of both Nos. 4 and 7 are too close to the shaft buildings, for should the top buildings of the shaft or the engine-house of either of them take fire the fan-house would be sure to burn, thus cutting off the only avenue for the escape of the miners. I would suggest the sinking of an escapement at some more convenient point for the use of the miners, and avoid the traveling of men through the shafts. This can be done at a very small cost, and would prove to be much safer and convenient for all parties.

Very respectfully,

CHARLES EVANS,

State Mine Inspector.

To the above letter the receiver replied as follows:

BEVIER, MO, Jan. 17, 1895.

Mr. Chas. Evans, State Mine Inspector, Jefferson City, Mo.:

Dear Sir—In acknowledging the receipt of your letter of January 15th inst., permit me to call your attention to the fact that the court whose directions I am struggling to carry out, forbids my operating this property, or any portion of it, at a loss. Mine No. 4 has, since my connection with it, been operated exclusively for the benefit of the men, most of them whom, through their foolish and ill-timed strike of a few months ago, are left in destitute circumstances. My individual preference, as you know, has been to shut the mine down for some time. The laws of our State, to which you are pleased to refer me, require that 100 cubic feet of air per minute be supplied each man. On January 8, by your measurement, we supplied a fraction over 150 cubic feet per minute at mine No. 4. The revolutions of the fan at 47 per minute are in exact keeping with the great economy we are compelled to observe in the use of water, which we obtain from the railway company, and in this connection I may add that we are unlike the soldier who was told that he would have to ask for a permit from his commander before he could purchase a drink, declined by saying he either begged for his liquor or paid for it, but never did both. We beg and pay for it both.

Mine No. 4 has been neglected for 6 or 7 years. There are today some 3500 feet of air-course on the north side, which should be kept open in many places; caved so that it is difficult for a man to crawl through. To incur the expense of putting them in good condition under existing circumstances is out of the question. I will cause to have the matter in regard to door examined.

I trust that during your coming visit, 20 days hence, I may be here and that you may suggest some way by which I may be able to let the few men at No. 4 continue in earning a scanty living.

I am glad to hear you say that No. 7 mine is the best in the State. We esteem Mr. Opie an excellent man under ground. The condition of that mine is not entirely due to his knoweledge and foresight. That, however, is immaterial.

I have directed that the changes to cages at No. 7 be made.

Very respectfully yours,

R. G. ROMBAUER,

Receiver Loomis Coal Co.

The above letter was received at this office on my return from the southwest part of the State, and was answered as follows:

JEFFERSON CITY, Mo., January 31, 1895.

R. G. Rombauer, Receiver of the Loomis Coal Co.:

Dear Sir—Having been engaged inspecting mines, I find upon my return your letter of the 17th inst. I am much surprised at the position taken by you—that you should assume because you operate a mine as receiver—that, therefore, you are privileged to ignore the natural laws of humanity and the law of the State of Missouri as well. In the performance of my duty I am guided and governed by the laws of this State, which I have sworn to enforce. The position assumed by you, nor the acts of the striking miners, does not make void my obligations in the enforcement of the law. I have to do with conditions as I find them, regardless of the acts and opinions of either operator or miner. Your sympathy for the miner would appear to a better advantage had you considered in connection with the miner's means of support due concern for their health and safety.

Then, again, your unwarranted sarcasm, with the reference to the amount of air per man measured, as mentioned, has nothing in it. In fact, your argument in this is like the air you furnish mine No. 4, its truth and life leaks out before accomplishing the desired end. Now let us see how far this 3320 cubic feet of air that you claim furnished 150 cubic feet of air per man per minute did reach. It was expressly stated in my former letter that the test was made on main air-course before there was any chance of leakage. You was at the same time informed how and where the air was wasted, and that it returned to the upcast before reaching the men, and that there was not enough of air circulating where the men were at work, and where it was needed, to measure it. This being so, upon what basis have you for figuring 150 cubic feet of air per man per minute? The facts are, according to the most moderate estimate, that you had enough mules down in your mine at the time to consume 680 cubic feet more air per minute than was furnished the entire mine, to say nothing of the amount necessary to supply the men.

You admit the air-courses are not in good condition, and claim it out of the question on account of the expense to put them in good condition. Of what use is an air-course if it does not supply air, and for what purpose are they constructed? Your excuse for economy in the running of your fan is no argument against my instructions. I wished it understood that the mine should be operated in accordance with law, or the mine be closed. We do not imagine that the Federal or any other court demands or contemplates a necessity for operating a death trap.

Respectfully,

CHAS. EVANS,

State Mine Inspector.

On the 26th of February I made another examination of this mine. I found the fan making 76 revolutions per minute at this date, and passing 8120 cubic feet of air in same time. The test was made at the same place as on my previous inspection, when only 3320 cubic feet was found passing. The route of the air had been shortened and the doors repaired, and trappers employed to attend the same. The ventilation was very fair on this inspection, as only about 25 men were at work. When inspecting the mines of Macon county in June there were only a few men working in this mine, and all the work was confined to drawing pillars; hence no inspection was made on this visit. Coal four feet thick, and worked on the double-entry room and pillar plan. The product is taken away over the Hannibal & St. Joseph railway to Kansas City, St. Joseph and points west and northwest.

Mine No. 7.—This mine is located about a mile south of Bevier, and is connected with the Hannibal & St. Joseph railroad by a spur switch. It is a shaft 55 feet deep, and operated by good machinery. This is comparatively a new mine—been in operation about 2 years. It is ventilated by a 10-foot fan, giving good results. I made three inspections of this mine during the past year: First inspection was made on the 9th of August, when the fan was found running at a speed of 80 revolutions per minute, and removing 13,300 cubic feet of air in same time, and was conducted practically around the workings. January the 10th I inspected the mine again and found it in good condition with plenty of fresh air passing to all working places. I also observed that considerable improvement had been made to the roadways since my former visit. The entries had been timbered, ditched, cleaned and dried. All the wooden rails had been replaced by iron rails, and the condition of this mine excellent. Having been notified by some of the miners that that the company had stopped taking the water out of old No. 1, the filling up of the latter mine endangered the lives of the miners at mine No. 7, as its underground workings were being driven toward the old No. 1. The company was notified by the following letter:

JEFFERSON CITY, Feb. 21, 1895.

Mr. R. G. Rombauer, Receiver Loomis Coal Company, Bevier, Mo.:

Dear Sir—From information received from parties familiar with the directions and distance of the workings of old Nos. 1 and 2, respectively, and from my personal knowledge of the situation, and knowing that these mines are full of water, I consider it extremely dangerous for men to work in mine No. 7 without using every precaution to ward off and prevent an accident. The company you represent as receiver should at once heed this warning. The men working in your mine are uneasy over the situation, and the impending danger makes them afraid to work. As a result, they have notified this Department of their fears. While the water was kept out of old No. 1 I did not anticipate much danger, as I had the impression that the water from mine No. 2 was running into No. 1, and for this reason a large amount of water could not accumulate in mine No. 2. But since I find that both of these old mines are full of water, the danger to mine No. 7 is largely increased, and, to my mind, becomes serious. I therefore, in consideration of the above facts, hereby call your attention to section 7065 R. S. of the mining laws of the State of Missouri, which requires a bore hole to be kept twenty feet in advance of the face of each and every working place, and, if necessary, on both sides when driving toward an abandoned mine and part of a mine suspected to contain inflamable gases or to be inundated with water. I have further to

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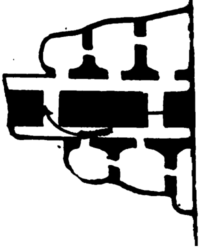

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insist upon an immediate and strict compliance with the requirements of the above section of the law at all points where the work is being driven toward the abandoned mines known as Nos. 1 and 2. Respectfully,

Charles Evans,
State Mine Inspector.

On the 25th of February I visited the mine and made a careful examination of it and the maps of all the surveys, and found that there were about 450 feet between the face of the north entry and the abandoned workings of old 1 and 2 mines, and the company was requested to keep a bore ahead or stop that part of the mine. I made another careful inspection of the mine on the 5th of June and found the mine had been badly neglected since my last visit; the entries had been stopped for some time; cross-cuts were found full of dirt, roadways wet and dirty. The two main south entries were found in a very poor condition, with large falls of rock, and water knee deep. I also found the impractical method of turning rooms off the main south entry engaged in; in fact, the mine was in a 100 per cent worse condition at this inspection than at the previous visit, and will soon go to wreck, unless it is better managed. Coal from 4 to 5 feet thick, and runs very regular. It is worked on the room and pillar double-entry plan. Mining is paid for at the rate of 50 cents per ton for unscreened coal. The product is taken to market over the Hannibal & St. Joe railway to Kansas City, St. Joe and points west and northwest. About 150 men employed.

Watson Coal Co.—W. S. Watson, manager; W. M. Rivers, superintendent. This company own and operate two mines in the vicinity of Bevier, but the old mine will be worked out and abandoned before this report reaches the hands of its readers. The old mine is a shaft 70 feet deep, operated by steam-power, and ventilated by a 10-foot fan. It has been practically operated, and everything connected with the safety appliances are kept in good and safe condition.

The Watson, new mine, is located about 1½ mile south of Bevier, and connected with the Hannibal & St. Joe railroad by a spur switch. Shaft 85 feet deep, equipped with first-class machinery for hoisting, draining and ventilating. A 12-foot fan furnishes the ventilation, which is set about 60 feet east of the engine-house, forcing and exhausting alternately in summer and winter. This mine has been opened out in a practical manner. All the entries and air-ways are high, wide and clean. The doors are made of 2-inch lumber in thickness, properly hung and closing with the air of themselves when opened. The air-current parts at the bottom of the down-cast to the north and south, and then travels over the east and west entries, returning over a different route to the up-cast, where the air re-unites again, going out in one volume. I made three inspections of the mine during the past year. First inspection was made on the 9th of August. The fan was running at a speed of 55 revolutions per minute at this date and was passing a current of air double the quantity required by law in same time. I inspected the mine again on the 10th of January and found it in excellent condition. Entries, air-ways, cross-cuts, large and clean, every door in good working order, and all other safety appliances in good condition.

It is a very easy matter for a practical inspector to discover on entering a mine whether the superintendent or man in charge is a practical man and qualified for the position or not. The Inspector can soon fathom the limit of his mining experience by the condition of his mine, and I venture to say that the superintendent of this mine has spent his time in mining, and obtained his knowledge of mines and mining by practical experience in the mines, and not by clerking or book-keeping. I made another inspection on the 5th of June. The fan at this date was making 57 revolutions per minute, and the meter registered 12,705 cubic feet on the north side, and 9775 cubic feet on the south side in the same limit of time, making in all 22,480 cubic feet of air. The fan has sufficient power to double that speed should the requirements of the mine demand it. All parts of the mine, as well as the safety appliances, was found in good condition. The coal is about 4½ feet thick, and worked on the double-entry room and pillar plan. Mining is paid for at the rate of 50 cents per ton for run of mine. The roof is a mixture of slate and soapstone, very soft in places, requiring great care and attention to keep it secure, but the employes of the mines being practical miners, very little difficulty is encountered in keeping it up. The product is taken to market over the H. & St. Joe R. R. to points west. There are 70 miners employed.

Bevier Black Diamond Coal Co.—Thos. Francis, superintendent. Mine located 1¾ mile southwest of Bevier and connected with the Hannibal & St. Joe R. R. by a spur switch. Shaft 60 feet deep and operated by good machinery for hoisting. The mine is ventilated by a 10-foot fan which is doing very effective work. I made the first inspection of this mine August the 8th, the fan was making 77 revolutions per minute at this date, and was passing 23,630 cubic feet of air around the workings in same time. This volume is conducted through the mine in two currents, one to the north side, and the other current to the south side, thence to the east and west entries, returning by different routes, and reuniting at the foot of the up-cast. The air-ways and cross-cuts were found large and clean and the ventilative currents evenly distributed to all the working places.

January 10th I made another careful inspection of this mine and it was found in good condition with the ventilation above the requirements of the law, and the entries, air-ways and cross-cuts large, high, wide and clean and in good order. On this visit to the mine I inspected every part therein and met and conversed with a large number of the miners, at which time I was not aware of or made acquainted with the fact that the work was being driven in the direction of an old abandoned mine by either the superintendent, foreman or miner. However, on or about the 26th of same month this Department was notified through a committee of the miners of the Black Diamond of the fears entertained concerning the tapping of water in the abandoned mine, and on my return to Jefferson City the following letter was sent to the company:

JEFFERSON CITY, Mo., Jan. 31, 1895.

Bevier Black Diamond Coal Company, Bevier, Mo.:

Gentlemen—I am informed through a miners' committee, that a part of the mine operated by your company, and known as the Bevier Black Diamond, is now being driven toward an old and abandoned slope; that the latter is full of water, and that there is much danger of tapping the same. This, if as represented, may prove a very serious matter. Not being familiar with the old slope or location, I hereby call your immediate attention to the matter, and request your compliance with the law relating thereto (as found in section 7065 R. S.) by keeping a bore-hole 20 feet ahead of all workings. If the situation is as stated, I consider it extremely dangerous, and insist upon a strict compliance with the law. Let me hear from you.

Yours respectfully,

CHAS. EVANS,
Inspector of Mines.

The following is the reply to the above letter:

BEVIER, Mo, Feb. 11, 1895.

Charles Evans, Esq., State Mine Inspector, City of Jefferson, Mo.:

Dear Sir—In reply to your favor of January 31st I would say: I have been absent for about ten days, which is the cause of delay in answering. I will say, however, that on the north of the Bevier Black Diamond mine, years ago, there were two slopes opened and some coal taken out. We have driven into one and taken out what little water there was, and found the entries and rooms all in perfect condition, and our men are working in there today. We are now driving two entries toward the other slope—one entry as far ahead of the other entry as we can carry the air, and with a bore-hole sufficient to make it perfectly safe if there is a large amount of water. But this old slope fell in and was abandoned, and our superintendent does not think that there is any water to fear on account of the falling in. Yet we shall take every precaution necessary for our protection as well as our men. Yours very truly,

W. H. LOOMIS, President,
Per J. O. C.

On or about the 13th of February the man working in the north entry broke through into the old mine at his cutting, the bore-hole being about 4 feet to the west of it, the waters came through very lively, but the men all got out before the waters filled up at the shaft bottom for about 3 feet in depth. I visited the mine on the 18th, and ordered the water taken out before permitting the men to go back to their work. February the 25th I went back and examined the condition of the water, pronounced the mine safe and the men went back to work, as the bulk of the water having been taken out, the pressure was so reduced that there was no danger. June the 6th I made another thorough inspection of the mine, and found it in a very good condition considering the large amount of water taken out of the same. The ventilation was found above the requirement of the law, as tests proved 17,095 cubic feet to be passing on the south side with 74 men at work, and 6920 cubic feet on the north side and 49 men at work. Instructions were given to Mr. Francis to make another division in the ventilative current on the south side in order to comply with the new law, which would be in force on the 23rd of June, as to the number of men working in one current. The roadways high and dry; ropes, cages and safety-catches in good repair. Coal from 4 to 5 feet in thickness, and worked on the double-entry room and pillar plan, paying for mining 50 cents per ton for run of mine. The product is shipped over H. & St. Joe R. R to St. Joe and other points.

LINGO POSTOFFICE.

Little Pittsburgh Coal Company.—A. G. French, superintendent; H. Howe, foreman. Mine located at Lingo, a mining camp 5 miles east of Bucklin, and connected with the Hannibal & St. Joe railroad. Shaft 135 feet deep; operated by steam-power. The ventilation is produced by a 12-foot fan, and is doing very good work. I made the first inspection of the mine on the 10th of August, and discovered that it had suffered great damage during the national strike of 1894, the communications of the air between the 1st east entry and the 2d and 3d east entries had closed, causing a deficiency in the ventilative current all over the mine, but the men were working night and day to open it. I visited the mine again in January, but as the same was not running, no inspection was made. June 6th I made another careful inspection, and found it in good condition. The old workings had been abandoned and new works opened out on the east side, near the shaft bottom. The connection between the 1st east and the other entries had been made and the ventilation was found better on this inspection than at any time previous. The entries had been retimbered, and were high, clean and dry. Coal from 3½ to 4 feet thick, and worked on the long-wall plan; mining paid for at the rate of 64 cents per ton in winter, and 60 cents in summer for screened coal. About 90 men and boys employed. The coal is shipped over the Hannibal & St. Joe railroad to Kansas City, St. Joe and other points.

The Brush Creek mine is operated by Thomas Kitchen, slope opening, and the coal is consumed in the surrounding country.

MACON CITY POSTOFFICE.

There are several parties operating mines in the vicinity of Macon City on a small scale, to supply the home demand. The mines are entered by drifts and the coal taken away in wagons. The same seam is worked at these mines as that so extensively mined throughout the county. The output of these mines and other information concerning same will be found in the statistical table of this county.

NEW CAMBRIA POSTOFFICE.

There are a few mines in the vicinity of New Cambria, operated in fall and winter to supply home trade. Coal 20 inches thick, of good quality.

MONTGOMERY COUNTY.

Production, 10,900 tons.

WELLSVILLE POSTOFFICE.

Vandalia Coal Company.—Wm. Ralston, superintendent. Mine located ½ mile west of Wellsville, and connected with the Wabash railroad. The shaft is 100 feet deep, and operated by steam-power. The ventilative current, which is produced by an 8-foot fan, is divided into two currents, one current passing to the southeast part of the mine while the other ventilates the north part. The required quantity of air is supplied to the mine and is well distributed. Coal about 30 inches thick, and worked on the long-wall plan. Paying 80 cents per ton for mining, and giving employment to about 45 men and boys the whole year. Coal consumed by the railroad company, which is taken by the engines from the coal chutes that have been erected at the mine.

Buford Noel operates a mine south of Wellsville. Shaft 30 feet deep. Hand-power. Mine operating to supply home demand.

PUTNAM COUNTY.

Production, 111,572 tons.

Putnam county for the year just closed shows a decrease of 8260 tons in her coal production as compared with the preceding year. The report of last year shows the output to have been 119,832 tons, while in this report it is given at 111,572 tons. The cause leading to the falling off of the coal product of this county is attributable largely to the strike at the Mendota mines last spring. In producing this amount of coal, 394 miners were employed in winter and 256 during the summer in the 11 mines operated, a description of which and the condition in which they were found at dates of inspection is as follows:

BLACKBIRD POSTOFFICE.

Wm. Atkins is operating a mine north of Blackbird creek. Shaft 37 feet deep, and hoisting done by horse-power. Coal 32 inches thick and worked on the room and pillar plan. From 3 to 6 men employed, and the coal consumed in the immediate neighborhood.

Blackbird Coal Co.—Wm. Love, superintendent. Mine located at Blackbird and connected with the C. B. & K. C. railroad. Shaft 53 feet deep and operated by steam-power. Ventilation is produced by a 12-foot fan, which was running at a speed of 80 revolutions per minute, passing the required quantity of air around the work. The air-ways and the doors, however, are not receiving proper attention at present, and deficiency in the ventilation will be the result in the near future. Every mine superintendent should visit all air-courses every day and examine each door carefully and make all necessary repairs promptly. By so doing he will save money for his company and maintain a healthy atmosphere for the employes to work in. I made two inspections of this mine during the past year and found it in a very fair condition, but very few men were at work, owing to the small demand for coal. The coal is about 33 inches thick, separated by a clay band 2 inches thick, running regular through the coal. It is worked on the room and pillar plan, paying 60 cents per ton for mining unscreened coal. The product is shipped over the C. B. & K. C. R. R. north and west.

Mendota Coal Co.—F. B. Ketcham, president, and B. H. Johnson, superintendent. Mendota is a mining village situated in the northern part of Putnam county and adjoining the Iowa line. This company owns a large tract of coal land surrounding Mendota on all sides, and upon which 3 large mines are located. All of them have shipping connections with the C. B. & K. C. R. R. The coal crops out in the hills and some of the mines are entered by drift. It will average from 32 to 34 inches in thickness, separated by a clay band about 2 inches thick, running regular through the coal. It is underlaid by a fire-clay mining, and overlaid by a good, strong cap-rock, but there is a black slate about 10 inches thick between the cap-rock and the coal. All of the mines are working the same seam of coal, and the long-wall and room and pillar methods of mining are practiced here, but the latter plan is preferable owing to the shallowness of the covering. Entries are driven double, the rooms are 40 feet wide, two men to the room, with two roads to the room, one on each side. The coal is worked by cutting both sides, undermining in the fire-clay and wedging it down, commonly called pick-work. Price paid for mining at the time was 70 cents per ton for screened coal, same weighed on a track scale after passing over an inch and three-quarter screen (something new in Missouri); this is the summer price, and 80 cents per ton in the winter months. All the mines are very well ventilated, and are kept in very good condition. They are safe, clean and dry, and very well managed. Following is a detailed description of each mine, with a statement as to their location and the condition in which they were found at dates of inspection.

Mine No. 1 is located one mile southeast of the depot. It is a drift opening, but a slope is being made in order to elevate the tipple-house above the railroad track. The coal is brought to the surface by machinery, and the tail rope system which extends for a mile into the underground workings is in successful operation here. This mine is worked very extensively, it has been in operation for a great number of years, and is showing considerable wear and tear. I only made one inspection of this mine during the past year, as same remained closed from the second of March up to July, owing to the prolonged strike of the miners of this district. At the date of above inspection, the mine was just recovering and getting in shape after the national suspension of work by the miners in 1894, during which time it suffered great damage. I found the air very good in the south part of the mine, and all the doors in very good condition; in fact the ventilative current was in volume above the quantity demanded by law, and well conducted around the works. C. E. Smith, foreman, of the south side.

The north part was not in as good a condition as the south, and a deficiency was found in the east entries, but men were at work cleaning air ways and setting up doors in various places to carry the ventilative current to the face of the work, which will doubtless prove satisfactory and beneficial. This mine is worked in separate departments, known as the north and south parts. It is ventilated by separate furnaces, and in charge of different men, and for all practical purposes might be termed two mines from the same opening. I. Ward, foreman.

Mine No. 2.—Martin Coleman, foreman. This mine is located two miles east of depot. It is a shaft 63 feet deep, and equipped with first-class machinery for hoisting. This is comparatively a new mine, having been in operation about two years. It has been opened out very extensively, is practically operated, and has a large output for a new mine. The ventilation is furnished at present by a furnace, which is only temporary, as the mine will soon outgrow the capacity of the furnace and a fan will be erected in its place. I made two inspections of the mine during the past year, and found it well ventilated and in good condition. At date of second inspection, June 29, I found the mine in better condition than on any former visit. Headers had been driven from the east off the north to connect with the face of the work on the straight east, thus shortening the distance the air had to travel and introducing a fresher air for the miners to inhale. The same method had been used on the west side of the shaft, and on careful examination I found plenty of fresh air circulating all through the mine. The air-ways are large and clean, and all the doors found in good condition. All entries were high, wide, dry and clean, and the mine in good condition. There were 104 men employed.

Mine No. 4.—Ed. McCullum, foreman. This mine is located 1 mile north of depot. It is a drift opening, but a slope is being made in order to elevate the tipple-house above the railroad track, so as to dump the coal. This mine was closed down in February, owing to the depression in its coal trade, and had not resumed operations up to date of this writing, hence only one inspection was made during the past year, and at that date (September 13) I found the mine in good condition with the ventilation above the requirements of the law. All coal from these mines is shipped over the C. B. & K. C. R. R., and consumed in Missouri, Nebraska and Minnesota.

UNIONVILLE POSTOFFICE.

Emporia Coal Company.—F. H. Lewis, president, and George Evans, superintendent. Mine located one and one-half mile north of Unionville. Shaft 125 feet deep, and hoisting done at present by horse, but the company contemplates equipping the mine with machinery at once. Ventilation is furnished by a small grate situated at the foot of the air-shaft. This is a new mine opened up last spring, and is operated by a co-operative company from Emporia, Kansas. The coal is of the same vein as that so extensively worked in other parts of this county and throughout Southern Iowa. It is about 32 inches thick and worked on the room and pillar plan, paying 60 cents per ton for mining unscreened coal. The mine is dry, has been opened up in a very practical way, and will make a good mine if better machinery is furnished and the underground work continues in good hands, as the present owners have not the required push. About 20 men employed, and the product is shipped to St. Joseph over the C. B. & K. C. R. R.

Following are names of parties operating mines east and southeast of Unionville in the fall and winter to supply the home trade: Anderson & Son, James Carter, the Henckle mine, Ed. Norton, John Moore and James Smith. The product is consumed at Unionville.

RALLS COUNTY.

Production, 8489 tons.

PERRY POSTOFFICE.

Ralls County Coal Company.—Mine located one and one-half mile northeast of Perry, and connected with the Perry & New London branch of the St. Louis & Hannibal railroad. Shaft 40 feet deep; horse power. Coal 26 inches thick and worked on the long-wall plan. The roof is a mixture of slate and soapstone, very friable and requiring great care to keep it up, but it seems to stand better under the long-wall method of mining than the room and pillar plan. The coal is underlaid by a soft fire-clay and is easily mined. The price paid for mining is 80 cents per ton, and the output is shipped to Hannibal.

John Ellis is operating a drift mine one-half mile northeast of Perry. The coal is 26 inches thick and worked on the long wall plan, paying 90 cents per ton for mining and wheeling. Most of the output is consumed at Perry, but some is hauled in wagons and loaded on railroad cars and shipped to market over the St. Louis & Hannibal railroad.

John Whitmore operates a mine north of Perry; drift opening. Mine only run in the fall and winter, and the product is consumed at Perry and vicinity.

RANDOLPH COUNTY.

Production, 217,958 tons.

Randolph county, for the year ending June 30, 1895, shows a slight increase in her output of coal, as compared with the previous year. The county produced this year 217,958 tons, which was sold at the mines for $243,259, or an average of $1.11 per ton. There are 27 mines now in operation in this county, of which 11 are shafts, 4 are slopes and 12 are drifts. There are six mines employing steam-power, 12 horse-power and 9 hand-power. There are 15 furnaces and 5 fans used for ventilation. The mines, on an average, employ 663 miners in winter and 456 in summer, with an average of 80 other employes. Forty-six mules were used in the mines during the winter and 30 during the summer. The system upon which the mines of this county are operated is confined almost exclusively to the pillar and room method, for out of a total of 27 mines only 3 are worked on the long-wall plan. The Chicago & Alton, the Missouri, Kansas & Texas and the Wabash railroads, passing through the center of the coal field, furnish good shipping facilities for the product. Following is a description of each mine, as found at date of inspection:

ELLIOTT POSTOFFICE.

Fleming Coal Company.—J. C. Fleming, superintendent; James Davies, foreman. Mine located at Elliott, a mining camp situated five miles south of Moberly and connected with the M., K. & T. railroad. Shaft 145 feet deep and equipped with good machinery for hoisting. I made three inspections of this mine during the past year. First inspection was made August 14 and mine found in very good condition. with the ventilation up to the requirements of the law. The air is first taken to the north side, returning through an air-course to the south side, where it splits into two currents—one current ventilating the west side, while the other furnished the air for the east entries, uniting at the south entry, from which point it returns to the upcast. Three tests of the air were taken, and 14,180 cubic feet found in circulation and well distributed to the working places. I observed the north and the south entries had been timbered and made secure, as suggested by me on a former inspection.

I made another inspection January 16 and found the south side in good condition, with plenty of fresh air circulating around the workings. On the north side a deficiency was discovered in some places, due to the want of doors set, and the management was requested to remedy this at once. May 22nd I made another careful examination of the mine, and found considerable improvement had been made in the underground workings since my former visit. New entries had been opened on the southeast side, which were high, wide and clean, and the air was found traveling in abundant quantity. The meter registered 8220 cubic feet on the west side, with 45 men at work; on the east side, where 71 men were at work, it registered 11,130 cubic feet, and 4500 cubic feet of air was passing along the north side, where about 40 men were at work. The current was weaker on the north side than at any other part of the mine, and deficiency found in some places. Preparations were being made, however, to enlarge the air-ways on this side, so as to admit a larger volume of air to pass. On the whole, the mine is well ventilated and in very good condition. Coal 3 feet 10 inches thick and worked on the long-wall plan, paying 80 cents per ton for mining screened coal. The product of the mine is consumed by the railway company, as ten coal chutes have been erected at the mine for the purpose of coaling engines. From 150 to 175 men employed.

HIGBEE POSTOFFICE.

Higbee Coal and Mining Company.—William Walton, superintendent; Hiram Hyde, foreman. Mine located west of Higbee and connected with the Chicago & Alton railroad. Shaft 170 feet deep, operated by the use of good machinery for hoisting and draining. Ventilation is produced by a 10-foot fan, which maintains a speed of about 80 revolutions per minute with good results. Three inspections have been made of this mine during the past year. First inspection was made on August 16 and it was found in good condition, with the ventilation above the demands of the law, as 9380 cubic feet of air was found passing and 52 men at work. The volume splits to the east and west entries and reunites again at the face of the south entry, from which point it returns to the upcast. While the ventilation at this mine, at this date, measured double the amount required by law, yet there is always a deficiency found in some part of a mine, owing to unavoidable obstructions caused by creeps and squeezes at the face of the work, where the air is required to travel. All the work at this date was confined to the south side of the shaft.

Second inspection was made December 24th. Fan was making 77 revolutions per minute and 9600 cubic feet of air found passing, which volume was proportionately divided to the respective working places. I found the air-courses had been cleaned and retimbered, and the mine in very good condition, with the single exception of setting a door on the west entry, which was promptly attended to. I inspected the mine again on the 27th of May, and found all the men working on the west side of the south entry, owing to obstructions on the east side caused by water breaking in. The ventilation was found up to the demands of the law, and the mine otherwise in very fair condition. The repairs are made to keep pace with the advancement of the mine, and considerable retimbering has been done on the south entry during the past year. Cages, ropes, safety catches and all safety appliances were found in good working order. Coal from 3 feet 6 inches to 4 feet thick, and worked on the long-wall plan. The roof immediately over the coal is a mixture of slate and soapstone. It is soft and friable, and requires great care and a large amount of timber to keep it secure. It can be worked, however, with greater economy on the long wall plan than by the room and pillar method. The product of the mine is consumed by the railroad company, and a large portion is used by the engines, which is taken out of the chutes erected at the mine for that purpose. From 60 to 70 men and boys are employed.

Interstate Coal Co.—William Walton, superintendent; Thomas Bain, foreman. Mine located one and one-half miles south of Higbee, and connected with the Missouri, Kansas & Texas railroad. Shaft 110 feet deep, equipped with first-class machinery for hoisting. This mine has been opened out very extensively and practically operated. It is considered one of the best equipped mines in the State. The engines were built by the Rankin & Fitch Iron Works to Louis, cylinders 12x20 inches, and connection made direct to a 6-foot drum. The engine-house, boiler-room, pit-head, weigh and tipple-house are well arranged for every convenience and economy of working. Ten coal chutes have also been erected at the mine to coal engines. A 12-foot fan is used to ventilate the mine, and the same is set about 200 feet from the main shaft, exhausting and forcing alternately summer and winter.

I made two inspections of the mine during the past year; first inspection was made August 18th, and found it in good condition; all the work at this date was confined to the east side of the shaft, where there were about 40 men at work.

On the 18th of January, I visited the mine again. The fan was making 60 revolutions per minute, and the meter registered 12,200 cubic feet of air passing in same length of time. This volume was circulating around the mine in two currents, to the north and south entries respectively, and reunited again at the face of the east entry, from which point it returns to the up-cast, over an air-crossing erected over the last entry. The ventilation was found to be double the amount required by law. The output of the mine has been rather limited the past year, owing to loss of contract to supply the railroad company, causing a suspension of work for nearly two years in the mine. It is now only operating to supply the local demand. At the time this mine closed down, it had an output of 600 tons per day, and was only fairly opened at the time. Had it remained in operation without interruption, it would now be one of the most productive mines in the State, and would double the output of any mine in Randolph county. Coal 44 inches thick, and worked on the long-wall plan. The mine is dry, roadways high, wide, clean, and in good condition generally. The coal is shipped over the M., K. & T. R. R. to local towns along the line. From 40 to 50 men employed.

HUNTSVILLE POSTOFFICE.

John Breckenridge mines.—Mr. Breckenridge owns and is operating two mines in the vicinity of Huntsville, both of which have shipping connection with the Wabash railroad. Both mines work the same seam of coal on the room and pillar plan. Both are shaft opening, and steam-power is used for hoisting; the ventilation is secured at both mines by the aid of fans.

Mine No. 1½.—John Jacks, superintendent. Mine located 2 miles east of Huntsville; the shaft is 100 feet deep, and mine ventilated by a 10-foot fan. On my first tour of inspection of the mines of Randolph county the past year, I found this mine temporarily closed; hence no inspection was made on that visit. December 26th I visited and made a careful inspection of every part of the mine; the air was travelling over the main south to face of entry, from which point it split to the east and west entries, returning to the up-cast by separate routes and passing through the old workings after leaving the miners. I found the ventilation very satisfactory all over the mine. The mine having been closed down for a number of months suffered considerable damage from the falling of the roof in various places, and men were at work at this date cleaning up the rock and repairing the mine. I also found work had been started on the north side, which was formerly stopped owing to faulty coal. This is the only inspection made of this mine during the past year, as on my next visit to Huntsville, the mine was not running. Coal 4 feet thick, separated by a rock parting from 3 to 12 inches in thickness, which is a draw-back to the economical working of the coal. The mine is perfectly dry and roadways in very fair condition. There were 35 men at work at date of this inspection.

Mine No. 3½ is located at Huntsville. The shaft is 65 feet deep, and mine ventilated by a 12-foot fan. I made the first inspection on the 26th of July. The mine having been idle for several months owing to the national strike, suffered considerable damage while it remained idle. The air-ways on the west side was found closed, and no air traveling, but men were at work making another air-course which lacked 20 feet of being through at date of this visit. I found a very fair current of air passing on the east side where nearly all the men were working. Second inspection was made December 27th, and the ventilation was found up to the requirements of the law on the east and south entries, but the current was weak and defective on the west side, owing to obstruction in the air-ways, and the management was notified to have them cleaned at once.

I visited and made another inspection of the mine on the 6th of April, and found it but fairly ventilated. Had the doors been properly hung and attended to, and the cross-cuts made larger and kept clean, ventilation would meet every requirement, as the fan is capable of producing double the amount of air produced at present. When the air-courses and cross-cuts are choked up with dirt, the fan is under a great strain, especially so if a large amount of steam is employed at same time power is expended with very little effective work. The mine being dry, the air is very hot, the heat being caused from the spontaneous combustion continually going on in the refuse of the interior.

I made another inspection on the 8th of July, this year, and found very little, if any, improvement being made since my previous visit. The cross-cuts were found entirely too small, and so chocked up with dirt that I had hard work to crawl over it. The doors were found in a rickety condition, and so battered by passing trips as to fail to close tight. Thus the air was allowed to return to the upcast without coming in contact with the miners. I found 9440 cubic feet of air on the return air-way at this date, while at the inside east entry there was not air enough to turn the vanes of the meter, owing to the defective doors and small air-ways. Coal about 4 feet thick, worked on the room and pillar plan, and mining paid for at the rate of 50 cents per ton for unscreened coal. The product is taken to market over the Wabash railroad, and is consumed at points west and northwest.

Caffery & Baker Coal Co.—Mike McHugh, superintendent. This company is operating mines southwest of Huntsville, all of which are connected with the Wabash railroad by a spur switch about a mile long, and a switch engine is used to haul the coal from the mines to main track.

Mine No. 20 is a drift opening, ventilated by a furnace. I made the first inspection of this mine July 27, 1894, and observed that it had suffered considerable damage during the three months it laid idle on account of the miners' strike in that year. Men were at work at this date cleaning up and putting the mine in condition. On the 5th of September I returned to the mine and made another inspection and found the air very much loaded with black-damp, besides a deficiency in the quality of the air. Instructions were given to the company to clean up and open out the air-ways, and to put a wooden door between the first and second north entries. December 21 I made another inspection of the mine and found a deficiency in the ventilation in every direction; in fact, there was no air traveling. The old workings on the north side of the west entry was on fire. Sulphur and carbonic oxide gas from this spontaneous combustion so charged the atmosphere of the mine that the miners were being poisoned inch by inch. The carelessness and ignorance of the superintendent wrought out this wonderful condition; and such carelessness on the part of anyone who has the health and safety of his fellows under his charge I consider little less than criminal. I ordered that the men be called out, and that the mine be closed until better and healthier ventilation was furnished. I returned to the mine again on the 27th of December to see if my instructions had been complied with. I found it closed, and it has so remained up to the closing of the fiscal year.

Mine No. 25.—This is also a drift opening and ventilated by a furnace. I inspected this mine on the 27th of July, 1894, and found it in a very fair condition. Early in September complaints were received at this office that the ventilation had been neglected and that there was no air in the mine. On the 6th of September I visited the mine and found deficiency in the north entry, owing to a defective door on the main entry, where the air was escaping in place of being conducted to the miners. I had this remedied at once. I made another inspection on the 21st of December and found the mine in a very fair condition, but the proper attention had not been given to the locating of doors in suitable places, and too great a use made of canvass doors on main entries. I visited this mine again on the 6th of April and found the air deficient at several points and the evidence of great neglect on the part of the superintendent; in fact, there is no known system followed, nothing but gouging wherever a room can be had with no other object in view than that of economy. The coal varies from 3 to 4 feet in thickness and is worked on the pillar and room plan. Mining is paid for at the rate of 50 cents per ton for unscreened coal. The product is taken to market over the Wabash railroad to Kansas City and points west. From 50 to 60 men employed.

Mine No. 30.—This is also a drift opening and ventilation produced by a furnace. This mine was worked during the strike by negroes brought here to take the place of the white miners, while the latter was on strike. The mine slovenly operated and poorly ventilated, and on several occasions I condemned the same and ordered it closed; but the negroes would go back and work in direct opposition to my instruction. Finally, as a result of the impractical method of working the mine, the roof caved in all round, shutting off completely any way of getting at the coal, and the mine had to be abandoned.

Lamb & Bailey operated a drift mine near Huntsville. Much of the output was sold to the local trade, the remainder was hauled in wagons and shipped over the Wabash railroad. The mine has been abandoned.

Mitchell & Sandison Coal Co.—Drift mine; located at Huntsville. Ventilation is produced by a furnace. Coal 4 feet thick and worked on the room and pillar plan. The most of the coal is taken away in wagons and loaded on cars at railway switch and shipped over the Wabash railroad to local towns along the line, but a considerable amount is sold to the home market. About 12 men are employed.

The Stewart mine is located at Huntsville, and is operated in the fall and winter to supply local trade.

Mike Streiff is operating a mine at Huntsville. Drift opening. Coal 4 feet thick, and worked on the room and pillar plan. The coal is consumed in the vicinity of Huntsville.

Emanuel Edwards.—Drift opening. Mine located north of Huntsville; coal 4 feet thick, and worked on the room and pillar plan. Mine operated to supply home consumption.

Jas. Robison has opened a new mine near the gas-house. Thickness of coal and mode of mining the same as that of other mines in the locality. Supplying home trade.

Pickett & Pryor are operating a mine south of Huntsville. Drift opening. The coal is consumed in the surrounding vicinity.

MOBERLY POSTOFFICE.

Eagle Coal Co.—H. B. Bisbee, superintendent. Mine located two miles west of Moberly; shaft 125 feet deep; hoisting by steam-power; ventilation is furnished by a furnace; coal varies in thickness from 2 to 4 feet, and is irregular and faulty. The output is consumed in the vicinity of Moberly.

Moberly Mutual Coal Co.—Mine located two miles northwest of Moberly. Shaft 105 feet deep; hoisting by horse-power; ventilation is produced by a furnace; coal 4 feet thick, and worked on the room and pillar plan, and paying 70 cents per ton for mining screened coal; the coal is taken away in wagons, and consumed at Moberly and vicinity. This mine changed ownership lately; Cronan & Hogan are the new operators.

Harry Ward.—Mine located 2 miles northwest of Moberly. Shaft 89 feet deep, and hoisting by horse-power. Coal 4 feet thick and worked on the room and pillar plan. Ventilation is secured by a furnace. From 6 to 10 men employed. The coal is consumed in Moberly and vicinity.

Wm. Brennam.—Mine located in the hollow 3 miles north of Moberly. Drift opening, supplying local trade.

Boon & Graves are operating the Hedrick mine. Drift opening. Coal consumed at the brick works, west of Moberly.

Wm. McKernnan is operating a mine north of Moberly. Drift opening. Coal consumed in the immediate neighborhood.

J. B. Williams & Son.—Mine located 1 mile north of Moberly. Shaft 90 feet deep; horse-power. Ventilation is produced by a furnace. Coal 4 feet thick, and worked on the room and pillar plan. Output consumed at Moberly.

There are a number of other small mines throughout the county, which I had no time or desire to visit, as their output is very small, and they are operated only in the fall and winter to supply home demand.

RENICK POSTOFFICE.

Forest & Genoha.—Mine located at Renick and connected with the Wabash railroad. Shaft 70 feet deep; horse-power. Coal 20 inches thick and worked on the long-wall plan. Coal is shipped over the Wabash railroad and consumed at local towns along the line.

Brooks & Martin operate a mine between Clark and Renick, to supply local trade.

Brown & Wellsby operate a mine near Renick in the fall and winter to supply local trade.

There are a number of small mines at Thomas Hill, Rolling Home, Armstrong and Yates, operating in the fall and winter. The output of some of these mines, with other information, will be found in the statistical table of this county.

D. T. Bradley has opened a mine 4 miles south of Moberly. Shaft 45 feet deep; hoisting by horse-power. Coal 44 inches thick and worked on the room and pillar plan. The product is taken away in wagons and consumed at the brick works near Moberly. From 6 to 10 men employed.

RAY COUNTY.

Production, 150,998 tons.

The strike running so far into the fiscal year had much to do with the decreased production in this county. For the year 1891, her rank was No. 4, with an output of 282,247 tons. For 1892, her rank was No. 5 and 1893, her year of largest production—319,405 tons, she ranked No. 4 again. For the years 1894 and 1895 she has droped to No. 6. The average production for the past five years has been 244,490 tons. The coal and the mines are within her borders to furnish a large output, and with good business and an absence of strikes, she will likely make a fine showing.

CAMDEN POSTOFFICE.

Lockwood & Lusk Coal Co. (formerly Bovard & Brown).—Mine located 2 miles east of Camden and connected by a switch with the Santa Fe railroad. Shaft 43 feet deep, and operated by steam-power for hoisting. Coal 18 inches thick, and worked on the long-wall plan, the moveable face-track being used, and ventilated by a furnace. From 15 to 25 men employed in the fall and winter. The coal is shipped over the Santa Fe railroad to Kansas City and points west.

Mosley Bros. opened a drift-mine at Camden last winter to supply the local demand, though a large amount of the coal is hauled in wagons, loaded on cars at the switch in Camden and shipped over the Wabash railroad to local towns along the line of the road. Thickness of coal and mode of mining the same as that of other mines in this locality.

FLEMING POSTOFFICE.

Kansas & Texas Coal Company.—B. F. Hobart, president, and Ed. Vale, superintendent. Mine located at Fleming and connected with the Wabash railroad. Shaft 70 feet deep; steam-power used for hoisting; ventilation produced by a 12-foot fan, which supplies the required amount of air. The air comes down the hoisting-shaft and travels to the face of the work over the north entry, and then divides to the east and west, returning to the fan-shaft through the face of the workings.

I made the first inspection of this mine December 19 and found the return air-ways on the east side had been cleaned and made larger, and the ventilative current was found stronger at this date than on any former inspection. May 17 I inspected the mine again and found it in good condition. Considerable of the work on the west face had been abandoned and the men put to work on the east side. One of the hoisting ropes was found in poor condition, was condemned, and the company requested to replace it with a new rope at once. Coal 18 inches thick, and worked on the long-wall plan, with the moveable face track in use. Mining is paid for at the rate of 87½ cents per ton. There are 10 chutes erected at the mine with which to coal engines, and about 60 tons per day of the product is consumed in this way. There were 70 and 50 men at work, respectively, at dates of inspection.

GEORGEVILLE POSTOFFICE.

W. Sater operates a mine at Georgeville to supply the home demand. The shaft is 155 feet deep; hoisting by horse-power. Coal 22 inches thick; worked on the longwall plan; ventilated by a small furnace, and employing three men.

HARDIN POSTOFFICE.

Joseph Loeven is operating a mine on the land of L. D. Evans. Coal 18 inches thick and consumed in the surounding county.

The Starr mine was operated by Wm. Phillips last winter. Coal at this mine is two feet in thickness and operated on the long-wall plan. Coal taken away from the mine in wagons, and consumed at Hardin and its surounding neighborhood.

The King mine is operated by C. Smith. Thickness of coal, mode of working, and other conditions are the same at this mine as at that of others in same locality.

Geo. Kelinburger is operating a mine at the Bluff, and the coal consumed at Hardin.

LAKEVIEW POSTOFFICE.

Jas. Edgar operated the Eckey mine up to March, 1895, when the same was leased to John Corkinkale, who operates it at present. It is located 4 miles north of the river at the foot of the Bluff, and is working the same vein as the other mines throughout the county. Mine operated to supply local trade.

Jas. Huston, drift mine, located 4½ miles north of Hardin. The mine only employes a few men in winter to supply local demand.

Bryant, Hiney & Co. are operating a mine about 5 miles north of Hardin, and are using considerable of the output of the mine at the tiling factory, in the manufacture of the clay into various articles.

Jerry Bryant is operating two mines near Norborne. Thickness of the coal and the mode of working is the same as that of other mines in this vicinity. Coal used to supply local trade.

Henry Duncan.—Drift opening, and mine operated to supply the home demand.

NORBORNE POSTOFFICE.

Hartwell, Arnold & Co. operate a drift mine about 5 miles north of Hardin. Coal 22 inches thick and mined on the long-wall system. Mine only operating in the fall and winter. The coal is sold in the home market. About 4 men are employed.

ORRICK POSTOFFICE.

Bissell Coal Co.—John Bissell, superintendent. Mine located at Albany, one mile north of Orrick. Shaft 64 feet deep, equipped with steam-power for hoisting. I made the first inspection of this mine December 19, and found the ventilation, which was secured by a furnace, up to the demands of the law, but otherwise the mine was not in good condition. The roadways were low and muddy, the entire face of the workings goes to the dip, and, the mine being very wet, the water follows, making it very disagreeable for the miner to dig his coal, as he has to work in water several inches deep. Coal 18 inches thick, worked on the long-wall plan, and using the moveable face track. The coal is loaded on cars at Orrick and shipped over the Wabash railroad to Kansas City and other points.

RICHMOND POSTOFFICE.

Richmond is the great coal centre of the northwest part of the State. It is surrounded by coal mines and is one of the best mining points in the State. While the coal seam is only 22 inches in thickness, yet, it runs unbroken, or nearly so, through the entire county, and with the quality of the coal, the nature of the roof and the economic mode of the long-wall working, which is so suitable to this coal seam, enables the operators to compete in the market with other mines, where a thicker coal seam is mined. Mining has been carried on in the vicinity of Richmond for 25 years, and comparatively speaking, mining is yet in its infancy here, as the coal seam is almost inexhaustible. There are 20 mines, large and small in the surroundings of Richmond within a radius of 5 miles, of which 12 are commercial mines, having shipping connections with the Santa Fe R. R., and 8 are local mines supplying the home market. From 500 to 600 miners are employed at these mines during the winter months, and from 300 to 400 in summer. I made two inspections of the mines during the past year; the conditions and locations of the same are as follows:

City Coal mine, operated by Douglas & Hastings. Mine located at Richmond, 1 block below the court-house. Shaft 80 feet deep; horse-power. Coal 24 inches thick; from 4 to 8 men employed in fall and winter to supply the local trade.

Douglas & Izett are operating the old Black Diamond mine, which is located at Richmond, near the new Black Diamond, and has an under-ground connection with the latter mine for escapement. Shaft 80 feet deep; horse-power. There are four men employed to supply local trade.

Pence & Anderson.—Mine located at Richmond. Shaft 83 feet deep; hoisting by horse. Mine ventilated by a stove, which was furnishing the required quantity of air, as very few men were at work. The mine is only operated for supplying the local trade, but some coal is hauled in wagons, loaded on cars and shipped over the Santa Fe railroad. Coal 23 inches thick; worked on the long-wall plan. From 6 to 10 men employed.

Dickson & Stewart are operating the old Milligan mine, which is located one mile north of Richmond. Thickness of coal, mode of working and price paid for mining is the same as at that of other mines in this locality. The coal is used at Richmond and vicinity.

J. Conrow operates a mine near Richmond to supply the home demand.

J. W. Harrison has sunk a new shaft two miles northeast of Richmond, and has equipped the same with horse-power apparatus. Mine is operated to supply home consumption.

The Rooney Bros. operate a mine on the Mosley & Dougherty land, 1½ mile southwest of Richmond. Shaft 60 feet deep. Horse-power. The same seam of coal and method of mining used here as at other mines in this neighborhood. Coal consumed at Richmond and vicinity.

Tom. Rooney is now operating the mine formerly known as the James & Murry mine. It is located 2½ miles south of Richmond. The coal is brought out through a vertical shaft. Horse-power for hoisting.

The Randall mine was first operated by Pat. Welsh during the past year, and was afterward leased to Wm. James, who lost his life in said mine by suffocation. Particulars of the accident will be found in table of accidents in this report.

Pence & Calnen.—Mine located south of Richmond and connected by a switch with the St. Joseph branch of the Santa Fe railroad. Shaft 94 feet deep. Hoisting by horse-power. This is a new mine, opened out last fall, when 24 inches of coal was struck at the above mentioned depth. A spur switch of 1200 feet in length was laid from the main track to the mine, affording an outlet for the coal of this company. An escapement-shaft is now in course of construction, and will be completed in time to meet the requirements of the law.

The Rankin mine is located one mile northwest of Lexington Junction, and is connected with the St. Joe branch of the Santa Fe railroad. It is a drift opening, and the coal is hauled out by mules. The ventilation is secured by the aid of a furnace and the mine is well ventilated. The coal is about 22 inches thick and is worked on the long-wall plan. Mining is paid for at the rate of 87½ cents per ton. The coal is taken to market over the Santa Fe railroad. From 25 to 40 men employed.

Fisher & Hubbell Coal Co., (formerly known as the Darneal mine.) Mine located one mile west of Richmond and connected by a spur with the St. Joe branch of the Santa Fe railroad. Shaft 110 feet deep; operated by horse-power for hoisting, and ventilated by a furnace.

First inspection was made November 7, and the mine found in good condition and all the safety appliances in good repair. I visited the mine again on the 13th of May, but as there were only 3 men at work, no test of the air was taken. An under-ground connection is kept open between this and the Pickering mine as an avenue of escape in case of accident to the hoisting-shaft. The seam of coal and mode of working is the same here as at other mines in this county. Coal shipped to St. Joe over the Santa Fe. From 25 to 40 men employed.

Pickering Coal Company.—Mine located one mile northwest of Richmond, and connected by a spur switch with the St. Joseph branch of the Santa Fe railroad. Shaft 110 feet deep. Steam-power used for hoisting. The mine is ventilated by a furnace, which is located at the bottom of the shaft, and exhausting through an air-chamber partitioned off from the end of hoisting-shaft; it was giving entire satisfaction at dates of inspection, November the 8th and May the 13th. The air-current is circulated in two divisions, and the mine was supplied with plenty of fresh air. Coal and mode of mining the same here as in other mines in the county. From 30 to 40 men employed. The coal is consumed at points north and northwest. Wm. Main, foreman.

Mrs. Mary Wilson's mine (formerly known as the Hubbell Mining Co.)—Mine located near Richmond, and connected with the St. Joseph branch of the Santa Fe railroad. Shaft 110 feet deep, and using steam-power for hoisting. I made a careful inspection of this mine November 10, and found it in better condition than on former visits. The furnace had been rebuilt, and the air-ways cleaned, and the air was traveling a shorter route than formerly, which increased the ventilative volume to double the original quantity. There were 35 men at work. This plant burned down sometime in January, but it was rebuilt at once. On the 15th of May I made another inspection and found the pit-head, tipple-house, engine-house, engine-bed and foundation, ropes, pulleys, cages all new and very good order; the shaft had also been re-timbered. The mine was also found in good condition, with 18 men at work. Coal and mode of mining the same here as in other parts of the county. Product consumed at St. Joseph and other points.

Hubbell, Hyat & Hubbell—John McCart, Supt. Mine located within the city limits of Richmond, and connected with the St. Joe Branch of the Santa Fe R. R. Shaft 115 feet deep; equipped by machinery for hoisting, and ventilated by a furnace which is located near the bottom of the hoisting-shaft, exhausting through an air-chamber partitioned off from the end of main shaft. I made a careful examination of this mine on the 10th of November, and found the ventilation defective. In fact, the mine had out-grown the capacity of the present furnace. The mine having been extensively worked, and the air having such a long distance to travel through small and contracted air-ways required more power to ventilate the mine than the furnace was capable of furnishing. The company was notified of that fact by the following letter:

JEFFERSON CITY, Mo., November 21, 1894.

Hubbell, Hyat & Hubbell Coal Co., Richmond, Mo.:

Gentlemen—On the tenth day of this month I made an inspection of your mine, known as No. 7, and was convinced that it had outgrown the capacity of the furnace now in use. The furnace cannot possibly furnish the required quantity of air demanded by the present dimensions of the mine. In fact, the current of air was so weak on my last inspection that it would hardly move the vanes of the air meter. Your system of ventilating, if properly supported in the manner mentioned, is all right. The doors are located in proper places and are well hung and looked after. Taken altogether, your mine is well managed with the single exception referred to, and in this connection, I must insist that a larger furnace be built at once, or a fan substituted for the old furnace. Your attention has heretofore been called to this serious defect in your mine, with instructions to have same remedied, which instructions you have altogether ignored. I trust you will at once comply with my wishes in this matter and oblige

Yours respectfully,
CHAS. EVANS,
State Mine Inspector.

In answer to the above the following letter was received at this office:

RICHMOND, Mo., December 26, 1894.

Chas. Evans, State Mine Inspector, Jefferson City. Mo.:

Dear Sir—Mr. Hubbell requests me to answer your letter of November 21st, in regard to the erection of a fan at Mine No. 7. Owing to the great depression in the coal trade he expects to close down the mine, or not work more than 10 or 15 men at most, and on account of hard times he will be unable to put in a fan this season. But if the coal trade revives the next season so as to be able to operate the mine at a paying figure, he will put in a fan. Of course if we only work a few men we can give them plenty of air.

(Signed.) JOHN MCCART, Supt.

May 14 I visited the mine again and found only 3 men at work, and no improvement nor any preparations being made toward the enlargement of the furnace, or the erection of a fan, but there being only 3 men at work no test of the air was taken. I expect to find the ventilation better on my next inspection of this mine or I will have to order it closed. Thickness of coal, mode of mining and price paid for mining is the same as that at other mines in this county. The coal is shipped over the Santa Fe to St. Joe and points north and west. There were 65 men at work on date of first inspection.

Richmond Coal & Mining Co.—J. S. Hughes, president; John Gibson, manager, and Sandy Gibson, superintendent. This company owns and is operating 7 mines in this county, from which a large amount of coal is produced every year, and employment is furnished to a large number of men. The mines are all worked on the long-wall system, well ventilated and drained, with good high roadways, and the general condition of each mine is very good. The thickness of the coal at the Camden mines is about 18 inches. It is overlaid by a draw slate 10 inches thick, which comes down with the coal, and is used to build walls along the roadways to secure the roof, as no timber is used in these mines. The coal in the vicinity of Richmond averages about 23 inches in thickness, and is overlaid with a good strong roof, which renders it well adapted to the long-wall method of mining which is used here; very little timber is required or used. The moveable face track is used in all the mines, and is a great convenience to the miner in loading his coal, as it saves the extra labor of rehandling it. Following is a description of each mine, with a statement as to the general condition and location, as found at dates of inspection:

Mines Nos. 1 and 2 are located 1 mile west of Camden, and are connected with the Wabash and the Santa Fe railways. Both mines have shafts of same depth and are equipped with good machinery for hoisting and draining. Mine No. 1 has 10 railroad chutes to coal engines. Both mines are ventilated by a furnace located at Mine No. 2. The air comes down the hoisting-shafts and travels north to the face of the work at No. 1. Here it splits to the east and west, the current going east returning to the upcast, and the current going west passing through the face of the workings and uniting with the air from No. 1, at the second west entry, thence returning to the upcast. I found the ventilation good at dates of inspection, but the mines have not been running to their full capacity for the past two years, owing to the small demand for coal. Roadways high, dry, and mines in good condition. About 125 men employed at both mines. The product is shipped over both roads to Kansas City and other points, but the Santa Fe Railroad Co. is using a large amount of the coal, which is taken on the engines from the chutes erected at the mine.

Mines Nos. 3, 4, 5, are located south of Richmond, and connected with the St. Joe branch of the Santa Fe R. R. Mine No. 3 has a shaft 55 feet deep, and is equipped with very fair machinery for hoisting and draining. This mine is connected by underground roadways with Nos. 4 and 5, thus furnishing an avenue of escape to the miners in case of an accident to the hoisting-shaft. All three of the mines are working the same coal face, and are ventilated by the same fan, the same being set on top of an air-shaft near No. 5. In fact, for all practical purposes, they might be called one mine with 3 openings. I made two inspections of these mines during the past year. First inspection was made November 12th, when, owing to the very small demand for coal, very few men were at work on the west side. May the 16, I visited the mines again, and only found mine No. 4 working, the others being closed for the summer.

Mine No. 4 is located about ¼ of a mile north of No. 3. It is also a steam plant. Shaft 70 feet deep. This mine has an underground connection with No. 3 and 5, working the same coal face and ventilated with the same air-current. On my first inspection last year, I found the east side of this mine had been stopped, and the men put to work on the west side. On my second visit the other two mines had been temporarily closed, and all the men were working at No. 4. All the safety appliances were found in fair condition.

Mine No. 5 is also a steam plant, and adjoins No. 4 on the north; the shaft is 75 feet deep. The same description of underground workings applies here as that given of Nos. 3 and 4. Good roadways are maintained between the three shafts to afford escapement from either in case of accident. I examined these roadways very closely by walking through from No. 3 to No. 5, over a mile in length. Price for mining is 87½ cents per ton, and the product of the mines is taken to market over the Santa Fe railroad, and consumed at St. Joe and points northwest.

Mine No. 9 is located ½ mile west of Richmond and connected with the St. Joe branch of the Santa Fe railroad; shaft 100 feet deep, and the only mine operated by this company where hoisting is done by horse. Owing to the small demand for coal very little work has been done at this mine during the past year. Coal and mode of working the same as that used at other mines in this county.

Mine No. 12 is located 1½ mile west of Richmond, and connected with the St. Joe branch of the Santa Fe railroad. The shaft is 120 feet deep, and operated by steam-power. The ropes, cages and all the safety appliances found in good condition. Ventilation is furnished by a furnace, which was giving good results at dates of inspections. The ventilative current passes down the main shaft and travels to the face of the north entry, and there divides to the east and west; but no permanent system of ventilation has been adopted as yet, and the calculation is to erect a fan at this mine and divide the volume of air into four divisions.

The coal runs low, faulty and irregular, and it is very expensive to mine, as extra pay must be paid for mining the low coal. On my second visit to the mine, May 13th, I found that the rock had been blasted down in some of the entries in order to put mules in the mine to bring out the coal in place of men. There were 50 men employed. The coal is shipped to St. Joe and the northwest over the Santa Fe railroad.

SWANWICK POSTOFFICE.

Williams Coal Co.—J. R. Williams, superintendent; Jas. Indy, foreman. Mine located at Swanwick, and connected with the St. Joe branch of the Santa Fe railroad. Shaft 95 feet deep; horse-power. This mine has been in operation for over 20 years and very extensively worked, it is poorly ventilated owing to the long distance the air has to travel through small air-ways. The present furnace is inadequate to furnish the required quantity of air in the mine, and the company contemplates sinking another shaft to remedy this difficulty. Coal low, faulty and runs irregular. About 25 men employed, and the product is shipped over the Santa Fe railroad to St. Joe and other points.

SALINE COUNTY.

Production, 3682 tons.

This county is in the center of the coal measure formation of the State, and from a personal knowledge acquired in prospecting over a large portion of it, I am fully satisfied that the entire county is underlaid with coal of a very fine quality. For unaccountable reasons, but very little mining has thus far been prosecuted. There are a few mines scattered throughout the county, but all of them are worked upon a very limited scale. Supply of the home demand, so for, is all that has been attempted.

MT. LEONARD POSTOFFICE.

James McQuinland operates a mine near Mt. Leonard. Coal 18 inches thick, and operated in the fall and winter to supply home trade.

Henry Taylor is operating a mine in the vicinity of Mt. Leonard to supply the home trade.

Geo. Black operates a mine in the same neighborhood to supply local trade.

SLATER POSTOFFICE.

Isaac Briggs operates a mine near Slater in the fall and winter to supply home trade.

SWEET SPRINGS POSTOFFICE.

Henry Bowen is operating a mine on the land of V. Marmaduke. Coal 30 inches thick, and worked on the room and pillar plan. The coal is hauled away in wagons and consumed at Sweet Springs and the surrounding country. There are other mines operating in the fall and winter in various parts of the county, which we had no time to visit.

SCHUYLER COUNTY.

Production, 1620 tons.

COATESVILLE POSTOFFICE.

L. Gordon is operating a mine on the widow Moch's place in the fall and winter to supply the local trade.

Charley Hughes and Charley Roberts are operating mines on the widow Moch's land to supply local trade.

T. I. Moch.—Mine located two miles southwest of Zola postoffice. Shaft 30 feet deep; horse-power. Coal 50 inches thick, and worked on the room and pillar plan. This is the same seam of coal as that so extensively worked in Putnam county and throughout Southern Iowa, with but one exception, that it is considerably thicker here than at any of the above-named places. The coal is overlaid by an excellent roof, which would make mining profitable here if the mine was located on the railroad, but being a mile and a half away, the output is limited to the supply of the local demand.

Charley Moore operates a mine in the vicinity of Zola in the fall and winter to supply the home market.

Ed. Marvin and E. Moch operate a mine on the Moch land. Coal consumed in the vicinity.

Raven Coal Company.—Chas. A. Whyman, president. This is a new coal company, lately organized in this county, with a capital stock of one hundred thousand dollars (we are informed). They have bought and secured 2000 acres of coal land, which extends from the Chariton river, on the west, across both the K. & W. and Wabash railroads, on the east, which is a solid field of coal under both these roads. Several prospect holes have been put down, and a 4-foot vein struck in all the holes at a depth of from 125 to 150 feet. It is the intention of this company to put in a large plant and equip it with modern machinery this fall, and to open out a mine which will have a maximum capacity of 2000 tons per day. In the near future I expect to see Schuyler county stepping to the front rank as one of the large coal producing counties of the State. This prospective mine will be located near Coatsville, about 10 miles west of Lancaster and 5 miles west of Glenwood Junction. The plant will be built between the K. & W. and Wabash railways, so as to be convenient for the coaling of engines and loading of cars for both roads. The coal mined is the same as that which is worked throughout Southern Iowa and in Putnam and parts of Adair counties in this State, and its reputation as a steam coal is excellent.

QUEEN CITY POSTOFFICE.

Harry Goldson is operating a mine northeast of Queen City. Coal about 20 inches thick, operated on the room and pillar plan. Mine only working in fall and winter, the product being consumed at Queen City and vicinity.

ST. CLAIR COUNTY.

Production, 5287 tons.

There are quite a number of mines in operation in various parts of St. Clair county, but operated only in a small way to supply the home trade. The following parties have been operating mines in various parts of the county during the past year:

APPLETON CITY POSTOFFICE.

Batchelor Bros. are operating a strip mine near Appleton City to supply home demand.

C. Norton.—Mine near Appleton City, and the same is operated in fall and winter to supply home trade.

St. Clair Coal Co. operates a mine in the same locality. Coal consumed at home.

Knowles Coal Co.—Mine located in the same locality as the other mines and operating the same coal seam. Product consumed in the neighborhood.

The Richee mine is located in the same locality as the other mines. Also, the Shultz and the Potter mines, all of which are operated to supply home consumption.

JOHNSON CITY POSTOFFICE.

A. W. Allison is operating a mine near Johnson City to supply the local trade.

P. Wheeler.—Mine located at Johnson City. Coal 3 feet thick and worked on the room and pillar plan. Coal consumed at home.

H. Grantly operates a mine which is located near Johnson City. Shaft 36 feet deep; horse-power. The coal is 3 feet 4 inches thick, and is operated on the room and pillar plan. Coal consumed in the vicinity.

LOWRY CITY POSTOFFICE.

W. G. Browning is operating a mine near Lowry City. Slope opening; mine only operated in fall and winter. Coal consumed in Lowry City.

Walker Bros.—Mine located 5 miles south of Lowry City, and called the Red Rock mine. It is a drift opening, and the coal is 28 inches thick, and worked on the room and pillar plan. The product is hauled away from the mine in wagons, loaded on cars at Red Rock switch, and shipped over the K. C., Ft. S. & M. R. R. and consumed at local towns along the road. There were 12 men employed, and paid $1 per ton for mining.

There are other mines operating on a small scale in the neighborhood of Lowry City, which we had no time to visit. Their output is limited, mines only running through the winter.

OSCEOLA POSTOFFICE.

The Bell mine is located near Osceola, and operated to supply local trade.

M. D. Gibson is operating a mine on the Lewis farm. Coal 30 inches thick, and worked on the room and pillar plan. Coal taken away in wagons and consumed in the vicinity.

W. A. Seymour is operating the Hoover mine, which is located 4 miles northwest of Osceola, across the Osage river. Coal 30 inches thick, and operated on the room and pillar plan. The product is hauled in wagons to Osceola, where it is consumed.

W. Watkins operates a mine on the Johnson Company's land. Coal 30 inches thick, and worked on the room and pillar plan, and hauled to Osceola, where it is consumed. All the mines in the locality are slope openings, and the coal is brought out by hand. It is of a very fine quality and easily mined, but being so far away from shipping facilities, as well as from a good local market, the output of the mines is very limited.

TABORVILLE POSTOFFICE.

R. W. Allison.—Mine located near Taborville, slope opening, and the product is brought out by hand. Coal 42 inches thick, and worked on the room and pillar plan; mine only operated in winter; output consumed at home.

The old Barbe mine is owned and operated now by Mr. Wooden. It lies one-half mile north of the Allison mine, and is working the same seam of coal and supplying the same market.

Harry Martin is operating the Johnson mine now. Mine only running in fall and winter to supply home consumption.

Ulysses Barnett operates a mine ¾ of a mile northwest of the Johnson mine. The thickness of the coal and mode of mining is the same at this mine as that of others in this locality. Coal consumed at home.

VISTA POSTOFFICE.

Doothat & Vannice.—Mine located at Vista, and connected with the K. C., Ft. S. & M. R. R. Shaft 55 feet deep; operated by horse-power. This is a new mine opened out about a year ago, when a 36-inch vein of coal was struck at the above mentioned depth. But very little work has been done at this mine during the past year owing (we are informed) to the inferior quality of the coal. However, on my recent visit to the mine I found it idle and partly filled with water.

SULLIVAN COUNTY.

Production, 1000 tons.

MILAN POSTOFFICE.

Locust Valley Coal Co.—Mine located at Milan. Shaft 190 feet deep. I visited this mine on the 24th of September, 1894, and found 4 men at work in direct violation of law, and in opposition to my former instructions, having ordered the mine closed for non-compliance with the mining law requiring the sinking of escapement-shaft. The prosecuting attorney of Sullivan county was notified and requested to compel a suspension of work at the mine by legal proceedings until the law was complied with, as will be seen by the following letter, which explains itself:

JEFFERSON CITY, MO., October 1, 1894.

MR. BENJAMIN F. PIERCE, Prosecuting Attorney Sullivan Co., Milan, Mo.:

Dear Sir—You will remember the effort to get the Locust Valley Coal Co. to sink an escapement-shaft and of its promise to commence the work.

On the 23rd of July, 1894, I addressed a letter to the company reminding it of its broken promise, and ordered it to suspend operation until an escapement-shaft was completed. Not only has the company neglected to reply, but it continues work in direct violation of law. Doubtless the company imagines that as it has leased its mine no action can be had against it, but it forgets that the State can close the mine, no matter who operates it. I now have to request that you at once take the necessary legal steps to close the mine, and cause the entire suspension of work in the same until an escapement-shaft is sunk. Please let me hear from you.

Yours respectfully,
CHAS. EVANS,
State Mine Inspector.

Days, weeks and months passed, and not hearing from the prosecuting attorney, I visited the mine again on the 27th of February, 1895, and found that no action had been taken by the attorney to close it, and men were at work in the mine at that date whom I ordered out at once, and I demanded that the mine be closed down and remain closed until the sinking of an escapement-shaft was completed, which was complied with and the men brought out their tools. Three or four days afterward this office was notified by Mr. Calahan that the pit-top, weigh-house, tipple and engine-house had burned down during the night. This was a great loss to the company as very little insurance was carried. Since the fire the company has built a temporary engine-house at the mine and are keeping the water out of it. And I am informed that another shaft will soon be sunk north of the old one, which will be used for a hoisting-shaft and the old one used as an escapement-shaft. In fact the work of sinking has already commenced.

On my tour of inspection through this county last May I noticed a new shaft sunk about half-way between Reger station and Humphreys, which will have a shipping connection with the Q., O. & K. C. railroad. The shaft will be sunk to a depth of 80 feet, when a 30-inch seam of coal will be struck. The same will be operated by Robert Monday:

VERNON COUNTY.

Production, 237,965 tons.

This county, four years ago, ranked No. 8 in order of production, with 64,303 tons to its credit. The output has increased steadily with an average of 190,656 tons for the period above named. For number of mines, employes, and other details, see accompanying tables.

BRONAUGH POSTOFFICE.

The following named parties are operating strip-pits in the vicinity of Bronaugh: Chas. Stoll, John Stoll, John Well, Pharoah Reed and W. C. Burton. The product of these mines is hauled in wagons and consumed in the surrounding country.

CARBON CENTRE POSTOFFICE.

Harvey, Hammond & Company operated a mine at Carbon Centre a part of last year. It was a drift opening driven in from the bottom of a strip-pit. Coal 4 feet thick and worked on the room and pillar plan. Coal hauled in wagons and loaded on cars at Carbon Centre, and shipped over the K. C. & Ft. S. and Mo. P. railroads.

Clay Lyons operates a mine near Carbon Centre, supplying local trade.

MILO POSTOFFICE.

There are quite a number of mines near Milo, in Drywood township, operating on a small scale to supply local trade. Following are the names of the parties: The Wallace mine, A. D. Lightner, A. Shower and John Feisler. There are other mines in Dover township, which I had no time to visit. Their postoffice address is Sheldon.

MOUNDVILLE POSTOFFICE.

D. K. Perkins is operating the Davenport mine at Moundville, supplying home demand.

The Robinson mine is located at Moundville. Shaft 27 feet deep; horse-power. Coal 3 feet thick and worked on the room and pillar plan; product supplying the local demand only.

W. D. Gaitor is operating a mine at Moundville to supply home trade.

Cooper & Son operate a strip-pit. The coal is consumed at Moundville.

RICH HILL POSTOFFICE.

Arthur Coal Co.—S. J. Hudson, president; Frank Williams, superintendent. Mine located 5 miles south of Rich Hill, and connected with the Missouri Pacific railroad. This is a strip mine and its coal is obtained by taking off the strata overlying the coal. The coal is from 5 to 6 feet thick and shipped to market over the Missouri Pacific railroad.

Brown & Henry Coal Co., (formerly known as the Bedford Coal Co.)—Mine located at Bedford, which is a mining village, situated 4 miles south of Rich Hill. Shaft 45 feet deep, equipped with good machinery for hoisting. The ventilation is furnished by a 10-foot fan, and the mine is well supplied with good air. I visited the mine on the 8th of October, but as the same was not running, no men at work, no inspection was made at this visit. I visited the mine again and made a careful inspection December 18, and found it in good condition. Measurement of air was taken at the foot of the down-cast, and the meter showed 9880 cubic feet of air passing per minute. I made an inspection on the 17th of June, and found the ventilation, and also the mine in good condition. Coal varies in thickness from 3 to 4½ feet. It is worked on the room and pillar plan, and the coal mined by shooting it off of the solid. All the entries are high, with good roadways. Coal shipped over the Missouri Pacific railway to Kansas City and other points. From 40 to 50 men employed.

Vernon County Coal Co.—H. Wise, superintendent; J. Nicholas, foreman. Mine located near Bedford, 4 miles south of Rich Hill, and connected with the Mo. P. railroad by a switch. Slope opening, and ventilated by a 10-foot fan. I made three inspections of this mine during the past year. I visited the mine on the 8th of October, but as it was not running, no inspection was made. On the 17th of December, I returned and made a careful inspection. The fan was running at a speed of 105 revolutions per minute, and 11,000 cubic feet of air was found passing in same length of time. This volume of air was circulating around the mine in one undivided current, which practice is not to all practical in a mine of its capacity. The quantity of air was above the demands of the law; but the quality was unfit to inhale, being so vitiated by the presence of black-damp that the company was requested to divide the air into two or more currents. I made another inspection on the 27th of March and found that no improvement had been made since my previous visit; there were 77 men and 10 mules working in the one current of air. The enactment of a law prohibiting more than 50 men to work under one current, having recently passed, this company was requested to make the necessary preparations in order to be able to comply with the provisions of the same when the time arrived for its enforcement. June 17th I made another inspection—the fan was making 100 revolutions per minute, and was passing 12,130 cubic feet of air in same time—measurement taken on the return air-course. An overcast was in construction at the 6th east entry, which will give a separate current of air to the 5th, and 6th east entries, where there were from 40 to 50 men working, and another current will be taken around to another part of the mine, which will add greatly to the ventilative volume. Coal from 4 to 5 feet in thickness, and worked on the room and pillar plan. Mining is paid for at the rate of 40 cents per ton, run of mine. The product is shipped over the Mo. P. railroad to Kansas City and other points. About 90 men employed.

Central Coal & Coke Co.—John Perry, general manager, and David Mackie, general superintendent. This company owns and is operating two mines in this county, both of which have shipping connection with the Missouri Pacific railroad by switches.

Mine No. 7.—John H. Williams, foreman. Mine located about 3½ miles south of Rich Hill and 1 mile west of Bedford Station. Shaft 140 feet deep and equipped with good machinery for hoisting. Ventilation is produced by a 14-foot fan, which was making 73 revolutions per minute at date of first inspection, October 12, and was passing 33,040 cubic feet of air in same length of time. This volume of air was circulating around the mine in one undivided current, and while the quantity was above the requirements of the law, it was very impure, being vitiated by the impurities thrown off by the old workings of the mine on its long route. I visited the mine on the 28th of March and found the men on a strike, owing to some trouble in regard to the check-weighman, hence no inspection was made. I inspected the mine again on the 14th of June. The fan was running at its usual speed and a good current of air circulating, but no measurement was taken. The north part of the mine was nearly worked out. Only four men were at work, and they were drawing pillars. All the work on the south side was confined to the 5th, 6th, 7th and 8th east entries, with the exception of a few men in pillars at another east entry. This mine has been worked very extensively and has been one of the largest producers, but owing to low and faulty coal it is nearly worked out and will soon be abandoned. Coal about 4 feet thick and worked on the room and pillar plan. Mining is paid for at the rate of 40 cents per ton for unscreened coal. The product is shipped over the Missouri Pacific railroad to Kansas City and other points. About 100 men employed.

Mine No. 8.—John Mackie, foreman. This mine is located about a mile south of No. 7. The shaft is 160 feet deep; equipped with most excellent machinery for hoisting and other purposes. It has shipping connections with the Mo. P. R. R., over which the product is carried to market. At date of my first inspection, Oct. 12th, only 14 men were found employed, and they were prospecting for better coal. March 27th, another inspection was made; ventilation was found to be very good. June 13th, I again visited the mine, and found the men still at work prospecting for better coal; all machinery and safety appliances were in the best of condition. The mine was equipped with a view to its becoming one of the largest producers in the State, and it is most unfortunate that the coal has proved so irregular and faulty. About 18 men employed. This company is contemplating the opening of a new mine in the neighborhood of Mine No. 7, and equipping the same with all the modern improvements. Considerable prospecting has already been done in order to find the elevation of the strata, and sinking will likely commence at once. When the mine is fully made ready for operation it will be unsurpassed by nothing of the kind in the State.

The Rich Hill Coal Company owns and is operating two mines in this county; both are under the same management as the mines of the same company in Bates county. In fact, all of the mines of this company located, not only in this county, but those in Bates county, are embraced within a radius of five miles of Rich Hill.

Mine No. 16.—B. Walson, foreman. Mine located 4 miles south of Rich Hill, and connected with the Missouri Pacific railway. This mine is entered by a slope, and the coal is brought to the surface by steam-power. Ventilation is furnished by a 10-foot fan, with the best of results. On my first inspection, I found an overcast had been erected over the east entry since my previous visit, and the air divided into two currents, which added greatly to the volume. Entries had been timbered and cleaned, and the mine was in good condition. March 26 I made another inspection. The fan at this date was making 80 revolutions per minute, and was passing 21,340 cubic feet of air in same length of time. Measurement was taken on return air-course. I inspected the mine again on the 18th of June, and found it well ventilated and in good condition, with all the requirements of the law observed and complied with. Coal 4 feet thick, and worked on the room and pillar plan. About 80 men employed.

Mine No. 17.—Alex. McKinnon, foreman. This mine is situated near Bedford station, about 4 miles south of Rich Hill, and is connected by a switch with the Missouri Pacific railroad. It is a shaft 125 feet deep, and equipped with good machinery for hoisting. Ventilation is produced by a 14-foot fan, and the mine is one of the best ventilated mines in this State, or in any other state. The air-ways and cross-cuts are high, wide and clean, and all the doors are set in the proper place, are well hung, and kept in good repair. At date of first inspection of this mine, I found the fan running at a speed of 52 revolutions per minute, and passing 38,170 cubic feet of air in same time. The fan is driven by an upright engine, connecting direct on the fan shaft, and has sufficient power to increase the speed to 200 revolutions per minute if the requirements of the mine demand it. The volume of air is made to circulate in three separate currents, giving plenty of fresh air to every working place. I inspected the mine again on the 27th of March, and found it in excellent condition, with all the machinery and safety appliances in good working order. I made another inspection on the 18th of June, and as on all previous inspections, found the mine well ventilated with other requirements of the law strictly complied with. In fact, all the mines of the Rich Hill Coal Company, are well ventilated, and practically operated. They are equipped with the latest improved ventilating fans, and with the best of machinery, and the company must be commended for its wisdom in securing practical men to supervise and manage its mines. Coal from 4 to 5½ feet in thickness, and worked on the room and pillar plan. Mining is paid for at the rate of 40 cents per ton for unscreened coal. Roadways are high, wide, dry, clean, and in good condition. The coal from all of the mines of this company is taken to market over the Missouri Pacific railway, and shipped to points west and northwest. But the railroad company uses a large amount of it in the operation of the road. About 125 men employed.

WALKER POSTOFFICE.

There was considerable coal mined during the past year, in the vicinity of Walker station, to supply the home demand. Following are names of some of the parties who have been mining by drifts and strip-pits: W. F. Blare, Morris Mann, Joseph Dodson, James Dodson and C. B. Crawford. The output of these mines and other information concerning same will be found in the statistical tables of Vernon county in this report.

TABULAR STATEMENTS.

REMARKS ON TABLES V AND VI.

The following table embraces in detail the coal-mining operations of each county in the State producing coal, and from which may be seen as follows:

The kind of power used, with number of steam and horse-power plants in each county; also the kind of opening, shaft, slope, drifts and strip-pits, and the number of each in operation; number of mines per county, kind of ventilation, and the number of fans and furnaces used in producing ventilation; method of working—long-wall or pillar and room; number of kegs of powder used in mining coal and cost of same; number of miners employed in winter and the number in summer; the same as to other employes in and about the mines; number of fatal and non-fatal accidents; the total number of tons of coal produced by each county, the average price per ton received at the mines for coal, and the total amount received for the product.

Table 6 represents each county, with the details of each mine in the respective counties, tabulated after the order and in the manner enumerated above.

TABLE V, SHOWING BY COUNTIES THE PLANT, EMPLOYES, COAL MINES FOR YEAR

Counties.	Kind of opening.				No. mines operated..	Kind of power.			How ventilated.			Mode of working.	
	Shaft.....	Slope.....	Drift	Strip-pit..		Steam	Horse.....	Hand.....	Natural ..	Furnace..	Fan.	Long-wall	Pillar and room....
Adair	3	....	2	...	5	1	3	1	2	2	1	.....	5
Audrain	10	....	1	....	11	4	6	1	5	5	1	7	4
Barton	2	7	5	7	21	2	2	11	7	6	1	.....	14
Bates	4	10	5	23	42	5	12	2	5	9	5	1	18
Boone	5	3	2	3	13	1	3	6	5	5	....	3	7
Caldwell	3	....	....	....	3	8	....	....	....	1	2	3	.....
Callaway	4	4	4	....	12	1	5	6	4	7	1	10	2
Carroll	3	1	...	5	9	....	4	...	3	1	....	3	1
Cedar	....	2	2	2	6	....	....	4	4	....	....	.....	4
Chariton	3	1	4	3	11	1	8	4	6	2	....	2	6
Clay	1	....	....	....	1	1	....	....	1	....	....	1	.....
Cole	1	....	....	....	1	....	1	....	....	1	....	.....	1
Cooper	1	...	3	....	4	1	....	3	3	1	....	1	3
Dade	....	9	....	....	9	....	7	2	9	....	....	.....	9
Grundy	3	....	....	....	3	3	....	....	1	....	2	3	.....
Henry	20	6	4	3	33	6	20	4	12	13	5	6	24
Howard	....	2	1	....	3	....	1	2	2	1	....	2	1
Jackson	1	....	....	....	1	1	....	....	....	....	1	1	.....
Johnson	2	3	3	....	8	1	1	6	....	7	1	.....	8
Lafayette	31	9	17	....	57	9	29	19	17	35	5	56	1
Linn	6	....	....	....	6	2	4	...	2	3	1	.....	6
Livingston	2	....	....	....	2	...	2	....	2	....	....	.....	2
Macon	12	1	5	1	19	11	3	4	5	1	12	2	16
Montgomery	2	....	....	....	2	1	....	1	1	...	1	2	.....
Nodaway	1	1	....	....	2	....	....	2	2	....	....	2	.....
Putnam	6	2	3	....	11	4	3	4	6	4	1	1	10
Ralls	1	....	....	....	1	....	1	....	....	....	1	1	....
Randolph	11	5	12	....	28	6	12	10	6	17	5	4	24
Ray	26	2	6	....	34	12	15	7	7	23	4	34	.....
Saline	3	2	....	....	5	....	4	1	3	2	...	3	2
Schuyler	2	....	1	....	3	....	....	2	1	2	....	.....	3
St. Clair	2	4	2	1	9	....	3	5	5	3	....	.....	8
Sullivan	1	....	....	....	1	1	....	....	1	....	....	.....	1
Vernon	5	3	....	18	26	6	2	...	1	1	6	.....	8
Totals	177	77	82	66	402	83	146	107	128	152	56	148	188

TONNAGE AND VALUE OF THE OUTPUT OF MISSOURI ENDING JUNE 30, 1895.

Powder.		No. mules worked.		Employes.						Total tons coal mined in each county......	Average price per ton received at mines..	Total receipts from output of mines for the year...........	Casualties.	
				Miners.		Other employes.		Total.						
No. kegs used...	Cost......	Winter...	Summer..	Winter...	Summer..	Winter...	Summer..	Winter...	Summer..				Fatal....	Non-fatal
50	$78 50	7	3	96	43	10	6	106	49	24,540	$1 32	$32,457	....	....
108	178 00	2	3	115	92	21	23	136	115	40,918	1 33⅓	54,787	....	....
3,391	6,784 50	21	17	218	86	33	16	251	102	76,242	1 15	87,214	....	....
9,843	13,708 21	47	46	532	429	163	152	695	581	252,231	93	234,808	3	8
275	437 75	4	4	89	41	21	12	110	53	21,090	1 25	26,503	....	....
......	....	7	7	137	111	30	22	167	133	17,876	1 69	30,255	....	...
3	7 50	1	.....	76	35	12	6	88	41	18,771	1 43	26,835	...	....
......	....	......	.....	18	.....	......	......	18	......	2,664	1 80	4,795	....	....
......	....	......	.....	17	......	......	......	17	......	1,590	1 43	2,270	....	....
......	....	......	.....	22	2	......	......	22	2	1,859	1 79	3,369	....	....
......	....	......	......	25	......	......	......	25	.....	4,000	1 50	6,000	....	....
......	....	......	......	4	3	......	......	4	3	1,120	1 56	1,680	...	....
......	....	......	......	10	7	1	1	11	8	2,492	1 99	4,932	....	....
......	....	......	.....	28	6	1	.....	29	6	5,066	1 48	7,499	....	...
......	....	3	3	157	108	53	30	210	138	37,200	1 85	69,032	...	....
2,668	4,464 95	16	14	365	189	85	50	450	239	99,058	1 37	135,927	....	....
......	....	1	1	18	6	2	2	20	8	3,460	1 97	6,825	....	....
......	....	......	2	80	40	15	15	95	55	14,632	1 25	18,290	....	....
198	297 00	1	1	42	26	6	6	48	32	8,873	1 34	11,891	....	....
75	112 00	.....	......	1,260	483	202	103	1,462	586	256,761	1 38	355,270	1	1
20	50 00	7	7	293	249	23	21	316	270	100,179	1 57	157,264	1	...
......	....	......	.....	6	2	.....	.....	6	2	1,050	1 75	1,837	....	....
11,966	23,902 00	89	59	1,336	964	275	213	1,611	1,177	539,120	99	533,693	2	1
8	16 00	2	1	42	27	4	2	46	29	10,900	1 26	13,750	....	....
......	....	......	......	10	4	.....	......	10	4	1,802	2 34	4,226	....	....
......	....	19	18	399	356	71	68	470	424	111,572	1 21	134,972	1	3
......	....	......	......	25	25	2	2	27	27	8,489	1 23	10,441	....	....
2,610	4,654 00	44	36	630	514	111	89	741	603	218,774	1 06	232,653	3	....
.... .	....	33	16	832	298	123	51	955	349	150,998	1 40	211,502	1	2
.....	....	......	......	25	5	4	1	29	6	3,682	2 15	7,415	....	....
......	....	......	......	13	5	1	1	14	6	1,620	1 29	2,085	...	....
......	....	......	......	30	8	10	1	40	9	5,487	1 49	8,184	....	....
150	277 50	......	... ..	6	2	2	1	8	3	1,000	1 25	1,250	....	....
11,610	23,255 17	74	73	475	432	144	142	619	574	237,965	99	235,779	1	....
42,975	78,223 08	378	311	7,431	4,598	1,425	1,036	8,856	5,634	2,283,081	1 17	2,675,690	13	15

TABLE VI—SHOWING, BY COUNTIES, KIND AND NUMBER WORKING SAME, KIND OF PLANT, NUMBER OF MEN OF COAL FROM THE RESPECTIVE MINES FOR THE THE PRODUCT.

ADAIR.

Name of company.	Operator.	No. of days worked..	Kind of open'g.				Depth of shaft......	Thickness of coal.		Power used.			
			Shaft....	Slope.	Drift...	Strip-pit.		Feet.....	Inches...	Steam...	Horse....	Hand....	Elect'y...
Imbody mine	W. C. Ditmar	63	1				50	4			1		
Madden, John F.	John F Madden	60			1			3	10			1	
O. K. Coal Co	J. F. Stroup	71	1				48	3	09	1			
Scott mine	D. C. Scott	150	1				42	4			1		
Stahl mine	H. C. McCahan	148			1			3	6		1		
Totals		492	3		2					1	3	1	

AUDRAIN

Name of company.	Operator.	No. of days worked..	Shaft....	Slope.	Drift...	Strip-pit.	Depth of shaft......	Feet.....	Inches...	Steam...	Horse....	Hand....	Elect'y...
Atkins mine	D. J. Atkins	100			1			2	8			1	
Davis mine	C. C. Davis	240	1				41	4	4		1		
Farber Coal Co	Farber Coal Co	100	1				105	2	4	1			
Ferris, Turpin & Co	O. J. Detienne & Co	134	1				55	2	4		1		
Lynch, Jas	J. D. Anderson	60	1				35	2	6		1		
McCowan, W. W	W. W. McCowan	240	1				28	4			1		
McGuire, Martha	Sam'l McGuire	150	1				26	3	6		1		
Robertson Bros	Robertson Bros	50	1				42	2	6		1		
Taylor Coal Co	W. F. Taylor Coal Co	165	1				107	2	6	1			
Vandalia Coal Co	Vandalia Coal Co	220	1				86	2	4	1			
Vandalia Coal Co	Vandalia Coal Co	100	1				75	2	6	1			
Totals		1559	10		1					4	6	1	

BARTON

Name of company.	Operator.	No. of days worked..	Shaft....	Slope.	Drift...	Strip-pit.	Depth of shaft......	Feet.....	Inches...	Steam...	Horse....	Hand....	Elect'y...
Allen, F. L	Frank L. Allen	120			1			2	4			1	
Bell, J. W	J. W. Bell	80		1				1				1	
Betz, Jacob	Jacob Betz.	100		1				2	4			1	
Boulware, T. G	John Brasser	100		1				2	4			1	
Boulware Bros	John Lavery	200				1		2	4			1	
Clark, Wilson	Henry Becker	200		1				1	2			1	
" "	Becker & Dickey	156			1			1	4			1	
Ganyon, S. H	Minerd Bros	72	1				45	3	2	1			
Hanshaw, W. H	W. A. Brown	75		1				2	2			1	
Humphrey Bros.	C. Lape	120				1		2	6				
Joyce, A. H	Chas. Holmstrom	100		1				1	2			1	
Mann, B. F	B. F. Mann	90			1			1				1	
Martin, J. A	J. A. Martin	60			1			1	1			1	
Parry, Mrs. J. C		60				1		1					
Spear, M. M	M. M. Spear	100				1		1					
Still, W. H. & J A	W. H. & J. A. Still	60				1		1	2				
Travis, Joseph	Joseph Travis	180		1				2			1		
Vernon No. 3	The Wear Coal Co	156	1				42	3		1			
Walser, G. H	Formerly Liberal Coal Co	112			1			2	4		1		
Whitesill, H. J	H. J. Whitesell	235				1		2	6				
Van Pelt, Chas	C. C. Daubin	150				1		2	8				
Totals		2526	2	7	5	7				2	2	11	

OF COAL MINES OPERATED, THE METHOD OR PLAN OF EMPLOYED, PRICES PAID AND RECEIVED, TOTAL OUTPUT YEAR ENDING JUNE 30, 1894, AND AMOUNT RECEIVED FOR

COUNTY.

How ventilated.			Diameter of fan....	Pl'n		Powder used.		No of mules.		Employes.						Prices paid for mining.		Tons of coal mined.	Price rec'd per ton at mines..........	Total amount rec'd for product of the year........
										Miners		Others		Total.						
Natural..	Furnace.	Fan....		Long wall	Pillar & R.	Number of kegs.	Cost.....	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.			
1	..	..	..	..	1	....	....	....	...	3	....	1	....	4	....	75	......	252	$1 12½	$ 284
1	..	..	..	..	1	5	$8 75	....	....	8	..	....	....	8	....	75	......	885	1 00	885
..	..	1	10	..	1	45	69 75	....	....	7	7	2	2	9	9	60	50	1,865	1 30	2,425
..	1	..	..	..	1	....	....	....	....	10	2	2	1	12	3	75	75	3,000	1 12½	3,375
..	1	..	..	..	1	....	....	7	3	68	34	5	3	73	37	$ 1 00	80	18,538	1 37½	25,488
2	2	1	..	..	5	50	$78 50	7	3	96	43	10	6	106	49	......	......	24,540	1 32	32,457

COUNTY.

1	..	..	..	1	..	3	$6 00	....	....	2	2	....	....	2	2	$1 00	$1 00	204	$1 50	$307
1	..	..	..	..	1	80	132 00	....	....	15	5	3	1	18	6	75	65	5,000	1 65	8,250
..	1	..	..	1	..	....	....	....	....	12	12	2	2	14	14	80	80	3,000	1 50	4,500
..	1	..	..	1	..	....	....	....	....	7	3	1	1	8	4	90	90	1,016	1 75	1,778
1	..	..	..	1	..	....	....	....	....	2	....	1	...	3	....	95	...	240	1 20	288
1	..	..	..	..	1	25	40 00	....	....	6	3	2	2	8	5	75	75	2,500	1 00	2,500
1	..	..	..	..	1	....	....	....	....	3	8	1	1	4	4	75	75	800	1 00	800
..	1	..	..	..	1	....	....	....	....	1	....	....	....	1	....	1 00	......	50	1 75	88
..	1	..	..	1	..	....	....	....	....	25	10	2	2	27	12	86	80	5,346	1 25	6,685
..	..	1	8	1	..	....	....	2	2	42	42	9	9	51	51	86	86	20,722	1 30	26,939
..	1	..	..	1	..	....	....	....	1	....	12	....	5	....	17	......	86	2,040	1 30	2,652
5	5	1	..	7	4	108	$178 00	2	3	115	92	21	23	136	115	......	.....	40,918	1 33⅓	54,787

COUNTY.

1	..	..	..	..	1	45	$100 00	....	....	6	4	....	...	6	4	60	55	1,250	$1 10	$1,375
1	..	..	..	..	1	....	....	....	....	3	2	....	....	3	2	$1 25	$1 25	540	1 75	945
1	..	..	..	..	1	....	....	....	....	....	5	..	....	....	5	80	80	600	1 00	600
1	..	..	..	..	1	....	....	....	....	2	....	....	....	2	....	80	......	200	1 25	250
..	..	..	..	..	..	....	....	....	....	1	....	....	....	1	....	80	......	291	1 12½	327
1	..	..	..	..	1	....	....	....	....	3	2	....	....	3	2	1 25	1 25	880	1 75	1,540
1	..	..	..	..	1	....	....	....	....	3	2	....	....	3	2	1 25	1 25	500	2 00	1,000
..	1	..	..	..	1	400	800 00	4	4	25	20	4	4	29	24	60	50	8,407	1 00	8,407
..	1	..	..	..	1	....	....	....	....	1	1	....	...	1	1	80	80	150	1 15	172
..	..	..	..	..	..	30	52 50	....	....	4	....	....	....	4	....	80	......	1,200	1 00	1,200
..	1	..		..	1	....	....	....	....	2	1	....	...	2	1	1 25	1 25	320	2 00	640
..	1	..	..	..	1	....	....	....	....	2	1	....	...	2	....	1 25	....	150	2 00	300
..	1	..	..	..	1	....	....	....	....	2	....	....	....	2	....	1 25	......	100	2 00	200
..	..	..	..	..	..	....	....	....	....	6	....	....	....	6	....	1 25	.....	360	2 00	720
..	..	..	..	..	..	....	....	....	....	2	....	....	....	2	....	75	......	212	1 75	370
..	..	..	..	..	..	....	....	....	....	2	....	....	....	2	....	75	.....	160	2 00	320
..	1	..	..	..	1	....	....	....	....	2	1	....	....	2	1	80	80	540	1 25	675
..	..	1	10	..	1	2,916	5,832 00	6	2	119	20	27	10	146	30	60	50	49,610	1 15	57,051
1	..	..	..	..	1	....	....	1	1	15	10	2	2	17	12	60	60	2,800	1 12½	3,150
..	..	..	..	..	..	....	....	....	....	7	7	....	...	7	7	60	60	3,172	1 00	3,172
..	..	..	..	..	..	....	....	10	10	11	11	....	....	11	11	60	60	4,800	1 00	4,800
7	6	1	..	..	14	3,391	6,784 50	21	17	218	86	33	16	251	102	......	......	76,242	1 15	87,214

STATISTICS OF

BATES

Name of company.	Operator.	No. of days worked	Kind of open'g. Shaft	Kind of open'g. Slope	Kind of open'g. Drift	Kind of open'g. Strip-pit	Depth of shaft	Thickness of coal. Feet	Thickness of coal. Inches	Power used. Steam	Power used. Horse	Power used. Hand	Power used. Elect'y
Abston, W. S	C. J. Denning	150				1		3					
Anderson, J	J. Anderson	50				1							
Bear, Cole & Co	F. Bear	80			1			2	10		1		
Black Diamond, Gaily & Brown	C. W. Field	117			1			3	3		1		
Borron Bros	Borron Bros	200				1		4	2				
Boyce, Ferguson & Massie	Sullivan & Miller	150		1				4			1		
Bruce & Manville, No. 2	Bruce & Manville	150		1				4			1		
Brayton, R	J. D. Rowlad	50				1		3					
Dabney, C. E	E. C. Dabney	90				1		3					
Doke & Drysdale	Doke & Drysdale	200				1		3					
Doolittle, John	L. D. Eastman	90				1		3					
Davis, E. G	Wm. Rickey	150				1		3					
"	W. B. Gaflay	70				1		3					
Eynod & Stephens	A. Eynod	102		1				2	6		1		
Farrell Bros	T. J. & W. Farrell	60				1		4	7				
Flansburg & Son	Flansburg & Son	50				1		2	10				
Ford, F. A	F. A. Ford	120				1		4	6				
Hudson, S. G	Hudson & Co	75			1			2	10		1		
Horton, C. E.	W. R. Johnson & Co	75				1		2	6				
Johnson, J	J. Johnson	75				1		3					
Kansas Line Coal Co	Kansas Line Coal Co	70		1				3	2		1		
Kansas and Mo. L. & C. Co	D. D. Peeler	270				1		4	8				
Lewis, O. H	John Gerods	160				1		3					
Lewis, B. F	W. H. Mace	60			1			3			1		
Manchester & Son, Thos	Thos. Manchester & Son	150	1				70	2	6		1		
Marsh, John J	J. C Griggs	60				1		4	6				
Martin, Gee & Ferguson	Martin-Gee Coal Co	130		1				4	4		1		
Peacock mine	A. Livingston	60				1		3					
Pearson, Peter	Peter Pearson	256				1		5	6				
Raney & Washburn	Raney & Washburn	75	1				45	3			1		
Rankin Bros	Rankin Bros	160				1		3					
Rich Hill Coal & M. Co., No. 15.	Rich Hill Coal & M. Co.	132	1				104	4		1			
" " No. 18.	" "	105		1				3	6	1			
" " No. 19.	" "	44	1				104	3	6	1			
" Sim Jay mine	David Rees	125		1				3		1			
Robinson, H. P	H. P. Robinson	75				1		3	10				
Russell, M. D	M. D. Russell	45				1		3					
Skillman, A	A. Skillman	50		1				3				1	
Walnut Drift Mine	Borin & Co	144			1			3	6			1	
Western Coal & M Co	Wallace Bros	60		1		1		3					
Western Mining Co	J. M. Tatley	70		1				2	6		1		
Wise Coal Co., J. M	Hayes, Emborn & Smith.	80		1				5	6	1			
Totals		4485	4	10	5	23				5	12	2	

BOONE

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-pit	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Ballenger, John L	Speed Mitchell	150			1			3				1	
Blackfoot Coal Co	Blackfoot Coal Co.	240	1				127	3	4		1		
Cameron, C. J.	W. W. Wilhelm	25				1		2					
Carter, W. J.	W. J. Carter	220	1				40	3	4		1		
Columbia Coal Co	Columbia Coal Co	300	1				112	3	4	1			
Davis, Isaac	Isaac Davis	90				1		3					
Gordon, S. D	S. D. Gordon	270		1				3				1	
Gossett, John F	John F. Gossett	100			1			2	6			1	
Rodgers, Henry	Henry Rodgers	240	1				20	2	6		1		
Stidham, W. A	W. A. Stidham	90	1				20	3	10			1	
Stone, J. W	J. W. Stone	20				1		2	6				
Sublett, T. T	T. T. Sublett	50		1				2	6			1	
Zarring, N. B	N. B. Zaring	80		1				3				1	
Totals		1875	5	3	2	3				1	3	6	

COAL MINES—Continued.

COUNTY.

How ventilated.			Diameter of fan ...	Pl'n		Powder used.		No. of mules.		Employes.						Prices paid for mining.		Tons of coal mined..	Price rec'd per ton at mines..........	Total amount rec'd for product of the year........
										Miners		Others		Total.						
Natural..	Furnace.	Fan...		Long wall	Pillar & R.	Number of kegs	Cost.....	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.			
..	..	..	..	..	..	...	...	...	...	10	10	...	...	10	10	60	60	3,000	$1 10	$3,300
..	..	..	..	..	..	...	...	...	...	2	...	...	...	2	...	60	...	100	1 00	100
1	..	..	..	..	1	42	$73 50	...	...	3	2	1	1	4	3	65	65	820	1 00	820
..	1	..	..	..	1	93	201 00	1	1	7	2	1	1	8	3	65	60	1,860	1 10	2,046
..	..	..	..	..	..	...	...	...	...	2	1	...	...	2	1	60	60	1,300	1 05	1,365
..	1	..	..		1	150	225 00	1	...	7	...	2	...	9	...	50	...	2,500	1 15	2,875
..	1	..	..	..	1	1,500	1,725 00	5	3	50	20	11	8	61	28	40	40	30,000	85	25,500
..	..	..	..	..	..	...	...	...	...	2	...	...	...	2	...	40	...	200	1 00	200
..	..	..	..	..	..	...	...	...	...	4	...	...	...	4	...	65	...	700	1 00	700
..	..	..	..	..	..	...	...	...	...	3	...	...	...	3	...	65	...	1,000	1 00	1,000
..	..	..	..	..	..	...	...	...	...	3	...	...	...	3	...	65	...	500	90	450
..	..	..	..	..	..	...	...	...	...	4	...	...	...	4	...	65	...	900	1 00	900
..	..	..	..	..	..	...	...	...	...	2	...	...	...	2	...	65	...	220	1 00	220
..	1	..	..	..	1	102	153 00	...	...	4	4	2	2	6	6	65	...	2,040	1 12½	2,295
..	..	..	..	..	..	...	...	...	...	2	...	...	...	2	...	65	...	320	1 00	320
..	..	..	..	..	..	...	...	...	...	2	...	...	...	2	..	65	...	150	1 25	187
..	..	..	..	..	..	...	...	...	...	3	...	...	...	3	...	50	...	816	1 25	1,020
..	1	..	..	..	1	30	52 00	1	1	4	3	1	1	5	4	75	75	600	1 15	690
..	..	..	..	..	..	...	...	...	...	12	12	10	10	22	22	60	60	18,000	1 00	18,000
..	..	..	..	..	..	...	...	...	...	2	2	...	...	2	2	60	60	500	1 12½	563
..	1	..	..	1	..	...	...	...	...	6	6	2	2	8	8	60	60	1,400	1 05	1,470
..	..	..	..	..	..	...	...	...	...	4	6	...	...	4	6	60	60	1,280	1 25	1,600
..	..	..	..	..	..	...	...	...	...	8	10	...	...	8	10	65	65	2,500	1 20	3,000
.	1	..	..	..	1	20	35 00	...	...	2	2	...	...	2	2	55	55	250	1 40	350
..	1	..	..	..	1	...	...	...	...	2	...	...	...	2	...	65	...	400	1 00	400
..	..	..	..	..	..	...	...	...	...	3	...	...	...	3	...	50	...	540	1 10	555
..	1	..	..	..	1	405	708 75	3	3	20	12	8	3	28	15	50	50	9,140	1 10	10,054
..	..	..	..	..	..	...	...	...	...	5	...	...	...	5	...	60	...	600	1 00	600
..	..	..	..	..	..	...	...	...	...	3	3	...	...	3	3	50	50	2,301	1 12½	2,580
1	..	..	..	..	1	75	120 00	...	...	5	...	1	...	6	..	65	...	1,500	1 20	1,800
..	..	..	..	..	..	...	...	...	...	3	...	...	...	3	...	65	...	800	1 00	800
..	..	1	15	..	1	3,749	4,977 42	21	21	205	205	73	73	278	278	50 40	50 40	84,297	90	75,120
..	..	1	10	..	1	1,545	2,047 12	5	5	54	54	18	18	72	72	50 40	50 40	27,480	1 01	28,121
..	..	1	8	..	1	45	59 40	...	2	...	...	22	22	22	22	40	40	1,327	1 05	1 352
..	..	1	8	..	1	757	1,003 02	5	5	45	45	5	5	50	50	40 50	40 50	28,740	81	23,323
..	..	..	..	..	..	...	...	...	...	3	...	...	...	3	...	50	...	400	1 00	400
..	..	..	..	..	..	...	...	...	...	3	...	...	...	3	...	50	...	323	1 15	371
1	..	..	..	..	1	40	72 00	...	...	3	4	...	...	3	4	50	...	1,247	1 02	1,275
1	..	..	..	..	1	160	281 00	...	...	6	6	...	...	6	6	55	55	1,680	95	1,596
..	..	..	..	..	..	...	...	...	...	2	...	...	...	2	...	60	...	300	1 00	300
1	..	..	..	..	1	30	50 00	...	...	2	...	...	...	2	...	70	...	200	95	190
..	..	1	10		1	1,100	1,925 00	5	5	20	20	6	6	26	26	40	40	20,000	85	17,000
5	9	5	..	1	18	9,843	13,708 21	47	46	532	429	163	152	695	581	......	......	252,231	93	234,808

COUNTY.

1	..	..	..	..	1	10	$17 50	...	...	4	1	...	...	4	1	87½	87½	600	$1 25	$750
..	1	..	..	..	1	65	113 75	1	1	9	2	8	2	17	4	75	75	2,400	1 25	3,000
..	..	..	..	..	..	...	...	...	...	2	...	...	...	2	...	80	...	40	1 25	50
..	1	..	..	1	..	60	90	...	...	15	5	5	2	20	7	87½	81	2,420	1 24	3,008
..	1	..	..	1	..	...	...	3	3	35	25	7	7	42	32	70	70	10,000	1 25	12,500
..	..	..	..	..	..	...	...	...	...	3	...	...	...	3	...	80	...	300	1 25	375
..	1	..	.	1	..	125	187 50	...	...	10	5	1	1	11	6	85	85	4,000	1 25	5,000
1	..	..	..	..	1	4	7 00	...	...	2	2	...	...	2	2	75	75	140	1 25	175
.	1	..	..	..	1	10	20 00	...	...	3	1	...	...	3	1	87½	87½	500	1 50	750
1	..	..	..		1	1	2 00	...	...	1	...	...	...	1	...	75	...	120	1 00	120
..	..	..	..	..	..	...	...	...	...	1	...	...	...	1	...	75	...	40	1 00	40
1	..	..		..	1	...	...	...	...	1	...	...	...	1	...	87½	...	50	1 50	75
1	..	..	..	..	1	...	...	...	...	3	...	...	...	3	...	87½	...	480	1 37½	660
5	5	..	..	3	7	275	437 75	4	4	89	41	21	12	110	58	......	.....	21,090	1 25	26,503

STATISTICS OF

CALDWELL

Name of company.	Operator.	No. of days worked	Kind of open'g.				Depth of shaft	Thickness of coal.		Power used.			
			Shaft	Slope	Drift	Strip-pit		Feet	Inches	Steam	Horse	Hand	Elect'y
Caldwell Coal Co	E. B. Hayden & Co	223	1				500	1	6	1			
Hamilton Coal Co	Hamilton Coal Co	127	1				300	1	6	1			
Kingston Coal Co	Kingston Coal Co	200	1				242	1	8	1			
Totals		550	3							3			

CALLAWAY

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-pit	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Carbon Valley	J. W. Simmons	250			1			2				1	
Castle, Wm	Wm. Castle	180			1			2	2			1	
Curd, Edwin	R. Cumberland	130		1				2	6			1	
" "	Fritz Lammers	180		1				2				1	
" "	Mahoney & Massey	80		1				2				1	
Fulton Fire Brick & M. Co	Fulton Fire Brick & M. Co.	269	1				100	2	8	1			
Harris, John	John Harris.	90	1				40	2	6		1		
Henderson, Jas. S	Edward Allen	150	1				25	2	8		1		
Maycock, S. & O	Samuel P. Maycock, Jr.	250		1				3				1	
Marsenkoff, John	John Marsenkoff	100	1				50	3			1		
Smith, James	James Smith	200			1			2	6		1		
Weaks, Wm	J. A. Little	75			1			3			1		
Totals		1954	4	4	4					1	5	6	

CARROLL

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-pit	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Black Crow Mining Co	Deardorf, Scott & Co.	175	1				57	2			1		
Brooks, Henry	Henry Brooks	100		1				1	8		1		
Christman, L	George Williams	100	1				10	1	6		1		
Farr, Ralph	Ralph Farr	180				1		2					
Hughes, Wm	Wm. Hughes	90				1		2					
Ogle, W. F	W. F. Ogle	80				1		2	4				
Reynolds, W	Walter Reynolds	50				1		1	8				
Scott, Wilson	Wilson Scott	195	1				26	2			1		
Whitehead, Jas.	James Whitehead	50				1		1	8				
Totals		1020	3	1		5					4		

CEDAR

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-pit	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Daniels, Lee.	Lee Daniels	50		1				2				1	
Davis mine	J. M. Connor	50		1				2				1	
Duncan, J C	J. C. Duncan	45			1			2				1	
Estes, R. H	R. H. Estes	100				1		1	10				
Poage, George M	Geo W. Poage	150			1			2	2			1	
Schroder, C. M	C. M. Schroder	75				1		1	8				
Totals		470		2	2	2						4	

COAL MINES—Continued.

COUNTY.

How ventilated.			Diameter of fan....	Pl'n		Powder used.		No. of mules.		Employes.						Prices paid for mining.		Tons of coal mined..	Price rec'd per ton at mine........	Total amount rec'd for product of the year........
										Miners		Others.		Total.						
Natural..	Furnace.	Fan....		Long wall	Pillar & R.	Number of kegs.	Cost....	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.			
..	..	1	10	1	..	....	....	2	2	90	80	15	12	105	92	1 00	1 00	11,720	$1 60	18, 752
..	..	1	10	1	..	....	....	5	5	31	18	10	7	41	25	87½	75	3,415	1 82	6,220
..	1	..	..	1	..	....	....	....	....	16	13	5	3	21	16	1 12½	1 12½	2,741	2 00	5,283
..	1	2	..	3	..	....	....	7	7	137	111	30	22	167	133	......	......	17,876	1 69	30,255

COUNTY.

..	1	..	..	1	..	....	....	....	....	4	2	1	1	5	3	1 00	1 00	1,196	$1 50	$1,794
1	..	..	..	1	..	....	....	....	...	4	...	....	...	4	....	1 10	......	800	1 50	1,200
..	1	..	..	1	..	....	....	....	....	2	....	....	....	2	....	1 00	1 00	145	1 37½	199
..	1	..	..	1	..	....	....	...	....	2	....	....	....	2	....	1 00	......	400	1 75	700
1	..	..	..	1	..	....	....	....	....	2	....	..	..	2	....	1 00	....	200	1 50	300
..	..	1	9	1	..	....	....	....	....	38	30	6	5	44	35	1 00	1 00	10,760	1 38	14,880
..	1	..	.	1	..	....	....	....	....	1	....	....	....	1	....	1 00	......	200	1 25	250
1	..	..	..	..	1	....	....	....	....	4	....	1	....	5	....	1 00	......	590	1 75	1,032
..	1	..	..	1	..	....	....	....	....	6	3	1	....	7	3	1 00	1 00	800	1 50	1,200
..	1	..	..	1	..	....	....	....	....	1	....	....	....	1	....	1 00	......	160	1 50	240
..	1	..	..	1	..	....	....	1	...	10	....	3	....	13	....	87½	......	3,200	1 37½	4,400
1	..	..	..	..	1	3	$ 7 50	...	....	2	....	....	....	2	....	80	......	320	2 00	640
4	7	1		10	2	3	7 50	1	....	76	35	12	6	88	41	......	......	18,771	1 43	26,835

COUNTY.

..	1	..	..	1	..	....	....	...	....	2	....	....	....	2	....	1 00	......	250	$1 75	$437
1	..	..	..	1	..	....	....	....	....	2	....	....	....	2	....	1 25	.... .	392	2 12½	833
1	..	..	..	1	..	....	....	...	....	2	....	....	....	2	....	1 25	......	320	1 87½	598
..	..	..	..	..	..	....	....	....	....	2	....	....	....	2	....	1 00	......	500	1 37½	687
..	..	..	..	..	..	....	....	....	....	3	....	....	....	3	....	1 00	.. ..	400	1 75	700
..	..	..	..	..	..	....	....	....	....	2	....	....	....	2	....	1 00	......	257	1 75	450
..	..	..	..	..	..	....	....	....	....	2	....	....	....	2	....	1 00	......	175	2 00	350
1	..	..	..	..	1	....	....	....	...	2	....	....	....	2	....	1 25	......	320	2 00	640
..	..	..	..	..	..	....	....	...	....	1	....	....	....	1	....	1 00	......	50	2 00	100
3	1	..	..	3	1	....	....	...	....	18	....	....	....	18	....	....	......	2,664	1 80	4,795

COUNTY.

1	..	..	..	..	1	....	....	....	....	4	....	....	....	4	...	1 00	......	200	$1 50	$300
1	..	..	..	..	1	....	....	....	....	3	...	....	....	3	....	1 00	......	200	1 50	300
1	..	..	..	..	1	....	....	....	....	1	....	....	....	1	....	1 00	......	80	1 25	100
..	..	..	..	..	..	....	....	....	....	1	....	....	....	1	...	1 00	......	100	1 75	175
1	..	..	..	..	1	....	....	....	....	4	....	...	.	4	...	75	......	560	1 25	720
..	..	..	..	..	..	....	....	....	....	4	....	....	....	4	....	1 00	......	450	1 50	674
4	..	..	..	..	4	....	....	....	....	17	....	....	....	17	....	....	......	1,590	1 43	2,269

STATISTICS OF

CHARITON

Name of company.	Operator.	No. of days worked	Kind of open'g.				Depth of shaft	Thickness of coal.		Power used.			
			Shaft	Slope	Drift	Strip-plt.		Feet	Inches	Steam	Horse	Hand	Elect'y
Grotjohn, Louis	Sulleet & Dooly	60			1			1	5			1	
Henderson, J. P.	J. P. Henderson	175	1				60	2			1		
Huenten, John	John Huenten	75			1			1	6			1	
Isle, R. W	R. W. Isle	35				1		1	4				
Isle, J. W	A. F. Isle	80				1		1	6				
Kahler, Valentine	V. Kahler	50				1		1	6				
Merchant, J. A	C. H. Owen	78		1	1			1	6		1		
Peacock mine	McNamara & Hanrahan	75						1	6			1	
Salisbury Coal Co., No. 1	Salisbury Coal Co	60	1				190	4	8	1			
Simpson, J. W	J. W. Simpson	80	1				22	2			1		
Williams, Thos. O	Williams & Winder	156			1			1	8			1	
Totals		874	3	1	4	3				1	3	4	

CLAY

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-plt.	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Missouri City Coal Co	Missouri City Coal Co	120	1				150	1	10	1			

COLE

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-plt.	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Geo. H. Leach & Co	George H. Leach & Co	160	1				175	5			1		

COOPER

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-plt.	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Hazell Springs Coal Co	Chas Hazell	100			1			1	6			1	
Hazell, Chas	" "	300			1			1	7			1	
Jenkins, H. W	Martin Tucker	250			1			1	6			1	
Missouri Valley C. & M. Co.	Mo. Valley C. & M. Co.	150	1				40	6		1			
Totals		800	1		3					1		3	

DADE

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-plt.	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Allen, Wm	Thos. Allen	120		1				2	4		1		
Dunham, Robert	Robert Dunham	90		1				1	4		1		
Farmer, J. F.	E. Goshorn	100		1				2	8		1		
McGarvey, mine	Millard Johnson	70		1				2	9		1		
McArthur mine	Y. H. Gardner	200		1				2	6		1		
McClurg, Robert	Robert McClurg	90		1				2	4			1	
McCombs mine	O P. Ramsey	90		1				2			1		
Meyer, D. J	Clayton & Benson	50		1				2				1	
Seaton, J. R	W. E. Seaton	90		1				2	8		1		
Totals		900		9							7	2	

GRUNDY

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-plt.	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Grundy County Coal Co	Grundy County Coal Co	210	1				168	1	6	1			
" " "	" " "		1				210	1	6	1			
Jaynes, Norman	M. W. Bastian	125	1				210	1	8	1			
Totals		335	3							3			

COAL MINES—Continued.

COUNTY.

How ventilated.			Diameter of fan....	Pl'n		Powder used.		No. of mules.		Employes.						Prices paid for mining.		Tons of coal mined.	Price rec'd per ton at mines....	Total amount rec'd for product of the year.... ....
Natural..	Furnace.	Fan....		Longwall	Pillar & R	Number of kegs.	Cost....	Winter...	Summer.	Miners		Others.		Total.		Winter...	Summer.			
										Winter...	Summer.	Winter...	Summer.	Winter...	Summer.					
1					1					2	1			2	1	1 25		60	$2 00	$120
	1				1					2	1			2	1	1 00	1 00	250	1 50	375
1				1						2				2		1 00		200	1 75	350
										1				1		1 00		48	2 00	96
										1				1		1 00		50	2 00	100
										1				1		1 00		40	2 50	100
1					1					2				2		1 50		66	2 00	133
	1			1						2				2		1 12½		150	2 00	300
1					1					4				4		75		480	1 75	840
1					1					3				3		1 12½		400	1 75	700
1					1					2				2		1 25		115	2 22	255
6	2			2	6					22	2			22	2			1,859	1 79	3,369

COUNTY.

1				1						25				25		87½		4,000	$1 50	$6,000

COUNTY.

1					1					4	3			4	3	60	60	1,120	$1 50	$1,680

COUNTY.

1					1					2	1			2	1	1 25	1 25	306	$2 12½	$650
1					1					3	3			3	3	1 25	1 25	800	2 25	1,800
	1			1						3	2			3	2	1 25	1 25	775	1 62½	1,260
1					1					2	1	1	1	3	2	1 50	1 50	611	2 00	1,222
3	1			1	3					10	7	1	1	11	8			2,492	1 99	4,932

COUNTY.

1					1					5	2			5	2	1 00	1 00	1,200	$1 50	$1,800
1					1					3				3		1 00		450	1 50	675
1					1					3				3		1 00		300	1 50	450
1					1					2				2		87½		200	1 50	300
1					1					3	1	1		4	1	1 00	1 00	800	1 50	1,200
1					1					3				3		1 00		210	1 50	315
1					1					5	1			5	1	1 00		1,034	1 50	1,551
1					1					1				1		1 00		72	1 50	108
1					1					3	2			3	2	80	80	800	1 37½	1,100
9					9					28	6	1		29	6			5,066	1 48	7,499

COUNTY.

		1	10	1	}			3	3	152	105	51	28	203	133	1 18¾	1 00	36,000	$1 95	$67,232
		1	10	1																
1				1						5	3	2	2	7	5	1 00	1 00	1,200	1 50	1,800
1		2		3				3	3	157	108	53	30	210	138			37,200	1 85	69,032

STATISTICS OF

HENRY

Name of company.	Operator.	No. of days worked	Kind of open'g.				Depth of shaft	Thickness of coal.		Power used.			
			Shaft	Slope	Drift	Strip-pit		Feet	Inches	Steam	Horse	Hand	Elect'y
Bartle, John	S. B. Price	150		1				1	4			1	
Beedy, J. C	W. E Hughes	218	1				18	4	8		1		
Blair, John I., (Col. No. 3)	D. C. Blanchard & Sons	233	1				85	3	8	1			
Blanchard & Sons	Blanchard & Sons	160	1				40	3			1		
Boydston, Chas	Chas. Boydston	75				1		3	10				
Brown Coal Co	Ed. Brown	200	1				60	3	4		1		
Central Coal & Coke Co	Central Coal & Coke Co	37	1				60	2	6	1			
Co-operative Coal Co	Co-operative Coal Co	182	1				75	3	10	1			
Edwards & Minish	Edwards & Minish	120		1				2	6			1	
England, Wm	Wm. England	100	1				25	2	8		1		
McFadden, H. B	H. B. McFadden	200		1				3			1		
Geahart, Theo	Theo. Geahart	240				1		4					
Hancock Coal Co	J. B. & G. R. Hancock	225	1				35	2			1		
Hines mine	J. W. Shook	160	1				25	4	10		1		
Hurst, J. W	J. W. Hurst	121	1				30	3			1		
Hurst & Mantle	J. Hurst	178	1				30	2	10			1	
Hurst, John	J. Hurst	105		1				3			1		
Mann, J. D	J. W. Martin	200			1			2	10		1		
McLeod, Miss S	Chas. Harper	75	1				30	2			1		
Miller, W. J	L. W. Beaman	310	1				35	5			1		
Mundy, B. F	B. F. Mundy	290		1				4	6		1		
Bell, V. B	Morris & Bogart Coal Co	120	1				75	2	8	1			
Pigg Coal & Mining Co	D. B. Pigg C. & M. Co	140			1			2	6		1		
Reese Wm	Wm. D. Reese	275			1			3	3		1		
Rusk, Wm	Wm. Rusk	200	1				40	2	9		1		
Standard Coal Co	O. A. Newbill	20	1				21	3			1		
Stephens, H. H	H. H. Stephens	90		1				3			1		
Stockton, J. B	Stockton Bros	246	1				30	2	2		1		
Tebo Coal Co	Tebo Coal Co	200	1				35	2	6	1			
Terrill, R	Co-operative Coal Co	240	1				25	3			1		
Thompson, R. L	R. L. Thompson	195	1				50	3	4	1			
Walsh, Wm	Henry Allen	32			1			3				1	
Victor Coal mine	J. W. Kenney	120				1		1	4				
Totals		5,457	20	6	4	3				6	20	4	

HOWARD

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-pit	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Fayette Mining Co	Fayette Mining Co	300			1			1	3			1	
Lockridge, B. M	Joseph Howard	80		1				1	6			1	
Mentier, Reynolds, Wafford & Robb	Mentier, Reynolds, Wafford & Robb	30		1							1		
Totals		410		2	1						1	2	

JACKSON

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-pit	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Brush Creek Coal & Mining Co.	Brush Creek Coal & M. Co	169	1				300	1	10	1			

JOHNSON

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-pit	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Boyd, P. H	H. H. Penrod	170			1			2	4			1	
Bristle Ridge mine	Joseph Murley	120		1				2	6			1	
Fisher, R. C	Grant Rumley	65			1			2	6			1	
Knob Noster Coal Co	Knob Noster Coal Co.	120	1				200	4		1			
Murray, J. M	J. M. Murray	100			1			1	8			1	
Meilley, M. B	M. B. Meilley	300	1				25	1	8		1		
nner, Henry	Henry Tanner	200		1				1	6			1	
, B. F	B. F. Wood	280		1				2				1	
als		1,355	2	3	3					1	1	6	

COAL MINES—Continued.

COUNTY.

How ventilated.			Diameter of fan ...	Pl'n		Powder used.		No. of mules.		Employes.						Prices paid for mining.		Tons of coal mined.	Price rec'd per ton at mine.	Total amount rec'd for product of the year. ....
										Miners		Others.		Total.						
Natural.	Furnace.	Fan		Longwall	Pillar & R.	Number of kegs.	Cost	Winter...	Summer.	Winter ..	Summer.	Winter...	Summer.	Winter...	Summer.	Winter...	Summer			
1	..	..	..	1	..	....	....	....	....	2	....	....	....	2	...	1 50	......	240	$2 00	$480
1	..	..	..	..	1	....	....	....	....	2	1	1	....	3	1	75	75	874	1 75	1,529
..	..	1	12	..	1	625	$937 50	3	3	40	30	9	7	49	37	95	85	10,000	1 37½	13,750
..	1	..	..	..	1	100	150 00	....	....	20	....	4	....	24	....	85	......	2,400	1 37½	3,300
..	..	..	..	..	..	....	....	....	....	1	....	....	....	1	....	80	......	125	1 25	156
..	1	..	..		1	200	300 00	....	....	6	2	2	....	8	2	90	80	800	1 37½	1,096
..	..	1	14	1	..	502	1,004 00	4	4	35	35	16	16	51	51	85	75	13,569	1 50	20,400
..	..	1	8	1	..	20	30 00	....	....	15	15	6	6	21	21	70	70	4,137	1 25	5,171
1	..	..	..	1	..	....	....	....		5	....	....	....	5	....	80	......	1,200	1 25	1,500
1	..	..	..	..	1	....	....	....	....	2	....	....	....	2	....	80	......	125	1 25	156
..	1	..	..	..	1	220	286 00	2	1	16	5	2	1	18	6	90	80	4,000	1 40	5,600
..	..	..	..	..	..	....	....	....		3	....	4	....	7	...	70	......	4,000	1 25	5,000
..	1	..	..	..	1	150	255 00	....	....	12	6	1	....	13	6	1 00	90	2,788	1 50	4,182
..	1	..	..	..	1	25	42 50	....	....	7	3	2	1	9	4	75	62½	1,733	1 25	2,166
1	..	..	..	..	1	....	....	....	....	6	....	7	....	13	....	90	......	1,107	1 25	1,384
..	1	..	..	..	1	....	....	....	....	10	....	1	....	11	....	1 00	......	2,944	1 40	4,151
..	1	..	..	..	1	95	137 75	....	....	8	....	1	..	9	....	90	......	1,787	1 40	2,519
1	..	..	..	..	1	25	50 00	1	1	3	2	....	1	3	3	80	75	750	1 75	1,312
1	..	..	..	..	1	....	....	....	....	2	....	....	....	2	....	1 25	......	720	1 50	1,080
1	..	..	..	..	1	48	43 20	....	....	3	3	....	....	3	3	75	62½	1,462	1 50	2,193
1	..	..	..	..	1	88	154 00	....	....	4	3	2	1	6	4	50	50	1,600	1 25	2,000
..	..	1	8	..	1	....	....	2	1	50	20	4	2	54	22	90	90	13,456	1 35	18,165
..	1	..	..	1	..	....	....	....	....	12	....	4	....	16	....	70	......	2,880	1 25	3,825
..	1	..	..	..	1	130	195 00	1	1	8	4	2	....	10	4	90	80	2,000	1 37½	2,750
1	..	..	..	..	1	....	....	....	....	3	1	....	....	3	1	80	80	461	1 62½	749
..	1	..	..	..	1	....	....	....	....	....	2	....	....	....	2	80	......	148	1 37½	202
1	..	..	..	..	1	....	....	....	....	8	....	....	....	8	....	1 00	......	1,000	1 25	1,250
..	1	..	..	..	1	....	....	....	....	4	4	2	2	6	6	1 00	1 00	1,024	1 62½	1,792
..	1	..	..	1	..	....	....	2	2	25	25	8	8	33	33	70	70	10,831	1 25	13,539
..	1	..	..	..	1	200	400 00	1	1	20	18	2	2	22	20	95	75	4,800	1 37½	6,576
..	..	1	10	..	1	240	480 00	....	....	30	10	5	3	35	13	95	85	5,850	1 25	7,372
1	..	..	..	..	1	....	....	....	....	1	....	....	....	1	....	80	......	47	1 75	82
..	..	..	..	..	..	....	....		....	2	....	....	....	2	....	1 00	......	200	2 50	500
12	13	5	..	6	24	2,668	4,464 95	16	14	365	189	85	50	450	239	......	......	99,058	1 37	135,927

COUNTY.

..	1	..	..	1	..	....	....	1	1	12	6	2	2	14	8	1 00	1 00	3,200	$2 00	$6,400
1	..	..	..	1	..	....	....	....	....	2	....	....	....	2	....	1 25	......	180	1 75	325
1	..	..	..	..	1	....	....	....	....	4	....	....	....	4	....	80	......	80	1 25	100
2	1	..	..	2	1	....	....	1	1	18	6	2	2	20	8	......	......	3,460	1 97	6,825

COUNTY.

..	..	1	10	1	..	....	....		2	80	40	15	15	95	55	1 00	87½	14,632	1 25	18,290

COUNTY.

1	..	..	..	..	1	....	....	....	....	3	....	....	....	3	....	75	......	205	$1 25	$256
1	..	..	..	..	1	....	....	....	....	5	....	....	....	5	....	75	......	800	1 00	800
1	..	..	..	..	1	....	....	....	....	1	....	....	....	1	....	1 00	......	68	1 98	135
..	..	1	8	..	1	198	$297	1	1	14	14	4	4	18	18	45	45	3,100	1 00	3,100
1	..	..	..	..	1	....	....	....	....	1	....	....	....	1	....	1 25	......	80	2 00	160
1	..	..	..	..	1	....	....	....	....	12	9	1	1	13	10	1 00	75	3,600	1 50	5,400
1	..	..	..	..	1	....	....	....	....	2	1	....	....	2	1	1 25	1 25	280	2 00	560
1	..	..	..	..	1	....	....	....	....	4	2	1	1	5	3	1 12½	1 12½	740	2 00	1,480
7	..	1	..	..	8	198	297	1	1	42	26	6	6	48	32	......	......	8,873	1 34	11,891

STATISTICS OF

LAFAYETTE

Name of company	Operator.	No. of days worked	Kind of open'g. Shaft	Kind of open'g. Slope	Kind of open'g. Drift	Kind of open'g. Strip-pit	Depth of shaft	Thickness of coal. Feet	Thickness of coal. Inches	Power used. Steam	Power used. Horse	Power used. Hand	Power used. Elect'y
Armstrong, Joseph	St. Clair Bros	90	1				34	1	4		1		
Beatty & Taylor	Beatty & Taylor	90	1				45	1	6		1		
Bell & Greer	W. H. Greer	180		1				1	8			1	
Bonanzo Coal Co	Bonanzo Coal Co	145	1				70	1	8		1		
Brackmann	Lynch & Jackson	100	1				35	1	8		1		
Carter & Son	Carter & Son	120			1			1	6			1	
Clark & Co	Talbott & Altchaffel	95		1				1	6		1		
Coleman, Frank	F. Coleman	100		1				1	5		1		
Consolidated Farmers' Coal Co	Consolidated Farmers' C. Co., 7 mines	175	5	1	1		80 45 15 20 30	1	6	2	4	1	
Coarder Coal Co	Coarder Coal Co	150	1				100	1	6	1			
Daisey Hill Coal Co	W. H. Bell	120	1				25	1	8		1		
Dover Coal Co	Dover Coal Co	150			1			2				1	
Duncan, Chas. E	Duncan, Chas E	120		1				1	6			1	
Farmers' Coal & Mining Co	Beatty, Taylor & Campbell	118	1				45	1	6		1		
Fox, N. F	R. L. Fox	120	1				40	1	6		1		
Gaffin, O. M	Gaffin, O. M	265	1				25	1	8		1		
Haygood Coal Co	Gunn Bros	238	1				18	1	5		1		
Hayes Coal Co	Frank Hayes	200			1			1	10			1	
Hughes, H. C	H. C. Hughes & Son	160	1				70	1	4		1		
Holwell, M	John Holwell	90	1				60	1	6		1		
Keist, Joseph	Joseph Keist	90		1				1	6			1	
Kreutz, F., Jr.	Wm. Davis	60			1			1	4			1	
Kresse, A. F	A. F. Kresse	160	1				20	1	10		1		
Hoefer mine	F. Thomas	35		1				1	3		1		
Lexington Coal Co.:													
Granby mine	Lexington Coal Co	186			1			1	8	1			
Hartman mine	"	84	1				28	1	6		1		
McDowell mine	"	54	1				43	2		1			
Riverton mine	"	119			1			2			1		
Macey, Henry	Henry Macey	100			1			1	10			1	
McGrew, J. C	J. C. McGrew	150			1			1	6		1		
Missouri River Coal & M. Co	Missouri River C. & M. Co	128	1				63	1	6	1			
Morgan, W. P	W. P. Morgan	128			1			1	6			1	
Morrison Bros	Morrison Bros	90			1			1	8			1	
O'Malley, A	A. O'Malley	80	1				20	1	8		1		
O'Malley, Jno	H. Green	100		1				1	6			1	
O'Neil & Bomger	O'Neil & Bomger	95			1			1	6			1	
Riely & Kent	Riely & Kent	35	1				60	1	6		1		
Rosewell, James	James Rosewell	120	1				75	1	6		1		
Salt Fork Coal & Mining Co	Salt Fork C. & M. Co	170	1				45	1	6		1		
Seawell & Co., J. M.	J M. Seawell & Co	140	1				40	1	8		1		
Steiman Coal Co	Henry Bartels	96			1			1	8			1	
Strathman, Henry	Kuehne & Weber	100	1				25	1	6		1		
Summers, M. W	M. W. Summers	101			1			2				1	
The Mathews Coal Co	The Matthews Coal Co	210	1				102	1	6	1			
The Southwestern Coal Co	The Southwestern C. Co.	129	1				105	1	8	1			
Valentine, John	John Valentine	120			1			1	6			1	
Walnut Grove mine	J. P. Hendrick	90		1				1	10			1	
Waskoski, M	M. Waskoski	200		1				1	4			1	
Water Street mine	Thos. Walton	250			1			1	6			1	
Waverly Coal & Mining Co.	Waverly Coal & M. Co	220	1				100	3	6	1			
Wellington Coal Co.	Wellington Coal Co.	100	1				38	1	7		1		
Totals		6,586	31	9	17					9	29	19	

COAL MINES—Continued.

COUNTY.

How ventilated.			Diameter of fan	Pl'n		Powder used.		No. of mules.		Employes.						Prices paid for mining.		Tons of coal mined.	Price rec'd per ton at mine.	Total amount rec'd for product of the year. .....
										Miners		Others.		Total.						
Natural.	Furnace.	Fan		Longwall	Pillar & R.	Number of kegs.	Cost.	Winter.	Summer.	Winter.	Summer.	Winter.	Summer.	Winter.	Summer.	Winter.	Summer.			
1	..	..	..	1	..	...	...	...	...	1	...	..	...	1	...	1 25	...	140	$1 75	$245
..	1	..	..	1	..	...	...	...	...	32	12	4	2	36	14	1 00	87½	5,276	1 62½	8,574
..	1	..	..	1	..	...	...	...	...	8	3	...	...	8	3	1 00	87½	1,600	1 37½	2,200
..	1	..	..	1	..	...	...	...	...	40	10	8	2	48	12	1 00	75	7,000	1 50	10,500
1	..	..	..	1	..	...	...	...	...	2	...	...	...	2	...	1 25	...	240	2 00	480
1	..	..	..	1	..	...	...	...	...	6	3	1	1	7	4	87½	75	1,876	1 00	1,876
..	1	..	..	1	..	...	...	1	1	3	1	1	1	4	2	75	75	500	1 50	750
1	..	..	..	1	..	...	...	...	...	2	...	...	...	2	...	1 00	...	400	1 25	500
..	6	1	10	7	..	...	...	6	2	225	75	50	15	275	90	1 00	87½	34,026	1 50	51,039
..	..	1	8	1	..	...	...	5	3	60	40	20	15	80	55	87½	75	18,000	1 40	25,000
1	..	..	..	1	..	...	...	...	...	3	2	...	...	3	2	1 00	87½	500	1 82	911
..	1	..	..	1	..	...	...	...	...	25	5	2	2	27	7	1 00	75	3,000	1 10	3,300
..	1	..	..	1		...	...	...	...	3	1	1	1	4	2	1 00	87½	800	1 45	1,160
..	1	..	..	1	..	...	...	...	...	50	18	6	4	56	22	1 00	87½	11,700	1 62½	19,009
..	1	..	..	1	..	...	...	...	...	3	...	.	...	3	...	1 25	...	358	2 00	716
..	1	..	..	1	..	...	...	...	...	8	4	1	1	9	5	1 00	87½	2,424	1 50	3,636
..	1	..	..	1	..	...	...	...	...	20	4	3	...	23	4	1 00	87½	3,404	1 50	5,106
..	1	..		1	..	...	...	...	...	60	35	4	2	64	37	1 00	75	13,500	1 25	16,875
..	1	..	..	1	..	...	...	...	...	12	6	2	2	14	8	1 00	87½	2,692	1 62½	4,374
..	1	..	..	1	..	...	...	...	...	3	...	1	...	4	...	1 00	...	600	1 50	900
1	..	..	..	1	..	...	...	...	...	2	...	...	...	2	...	1 00	...	150	1 50	225
1	..	..	..	1	..	...	...	...	...	3	...	...	...	3	...	1 50	...	180	2 00	360
1	..	..	..	1	..	...	...	...	...	2	2	...	...	2	2	1 12½	1 12½	410	1 75	720
1	..	..	..	1	..	...	...	...	...	...	7	...	...	...	7	...	1 12½	380	1 87½	712
..	1	..	..	1	..	...	...	6	5	64	66	30	25	94	91	55	45	29,567	1 27	37,638
..	1	..	..	1	..	...	...	...	..	38	...	4	...	42	...	1 00	...	3,029	1 28	3,875
..	..	1	10	1	..	...	...	6	...	80	...	12	...	92	..	87½	...	10,314	1 33	13,762
..	1	..	..	1	..	...	...	7	7	100	96	15	14	115	110	87½	75	36,182	1 28	46,470
..	1	..	..	1	..	...	...	4	...	50	...	...	...	50	...	87½	...	6,940	1 35	9,369
..	..	1	10	1	..	...	...	4	2	92	20	10	2	102	22	87½	75	12,836	1 43	18,417
..	1	..	..	1	..	...	...	...	...	30	20	3	2	33	22	87½	75	6,910	1 25	8,637
1	..	..	..	1	..	...	...	...	...	2	1	...	...	2	1	1 12½	1 00	320	1 50	575
..	1	..	..	1	..	...	...	...	...	5	...	...	...	5	...	1 25	...	1,220	1 50	1,830
..	1	..	..	1	..	...	...	...	...	3	...	...	...	3	...	1 00	...	249	1 25	311
1	..	..	..	1	..	...	...	...	...	1	...	...	...	1	...	1 00	...	150	1 50	225
1	..	..	..	1	..	...	...	...	...	2	...	...	...	2	...	1 00	...	280	1 87½	525
..	1	..	..	1	..	...	...	...	...	6	...	...	...	6	...	1 25	...	266	2 00	532
..	1	..	..	1	..	...	...	...	...	3	...	...	...	3	...	1 25	...	600	1 50	900
..	1	..	..	1	..	...	...	...	...	26	20	4	2	30	22	87½	75	7,544	1 60	12,104
..	1	..	..	1	..	...	...	...	...	25	...	2	...	27	...	1 00	...	3,360	1 50	5,040
..	1	..	..	1	..	...	...	...	...	3	...	...	...	3	...	1 00	...	320	1 75	560
1	..	..	..	1	..	...	...	...	...	5	...	...	...	5	...	1 25	...	600	1 75	1,005
1	..	..	..	1	..	...	...	...	...	2	...	...	...	2	...	1 25	...	350	1 75	612
..	1	..	..	1	..	...	...	...	...	70	...	6	...	76	...	1 00	...	4,656	1 50	7,049
..	..	1	10	1	..	...	...	...	...	30	10	8	8	38	18	1 00	87½	8,530	1 24	10,600
1	..	..	..	1	..	...	...	...	...	1	...	...	...	1	...	1 00	...	150	1 75	262
1	..	..	..	1	..	...	...	...	...	2	...	...	...	2	...	1 00	...	225	1 75	394
..	1	..	..	1	..	...	...	...	...	3	...	...	...	3	...	1 12½	...	727	1 37½	1,000
..	1	..	..	1	..	...	...	...	...	9	7	...	...	9	7	1 12½	87½	2,880	1 37½	3,960
1	..	..	..	..	1	75	$112	...	...	15	15	2	2	17	17	65	65	6,400	1 00	6,400
..	1		..	1	..	...	...	...	...	20	...	2	...	22	...	1 12½	...	3,000	1 35	4,050
17	35	5	..	56	1	75	112	..	...	1260	483	202	103	1462	586	...	...	256,761	1 38	355,270

STATISTICS OF

LINN

Name of company.	Operator.	No. of days worked	Kind of open'g.				Depth of shaft	Thickness of coal.		Power used.			
			Shaft	Slope	Drift	Strip-pit		Feet	Inches	Steam	Horse	Hand	Elect'y
Bottomly, J. C	J. C. Bottomly	200	1				150	2	4		1		
Clark, Geo.	Geo. Clark	140	1				140	2			1		
Landreth & Son	Landreth & Son	208	1				130	2			1		
Marceline Coal Co	Marceline Coal Co	239	1				182	2	1	1			
Schaeffer, B.	B. Schaeffer	168	1				155	2	2		1		
The Brookfield Coal Co	The Brookfield Coal Co	200	1				155	2	5	1			
Totals		1,155	6							2	4		

LIVINGSTON

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-pit	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Eagle Coal mine No. 1	W. A. Cox	200	1				65	1	8		1		
" " 2	"	90	1				65	1	8		1		
Totals		290	2								2		

MACON

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-pit	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Baldwin, B	Gunter & Yates	50				1		2					
Bevier Black Diamond	Bevier Black Diamond	146	1				50	4	6	1			
Freele, Wm	John Harold	150			1			1	8			1	
James & Son	James & Son	100	1				50	4	6		1		
Kansas & Texas Coal Co. No. 33	Kansas & Texas Coal Co.	163		1				4		1			
" " " 43	" " "	90	1				135	4		1			
" " " 46	" " "	251	1				168	4		1			
" " " 48	" " "	90	1				60	4	6	1			
" " Ferris mine	" " "	210			1			4			1		
Little Pittsburg Coal Co	Little Pittsburg Coal Co.	220	1				135	3	10	1			
Loomis Coal Co. No. 1	R. G. Rombauer, receiver	119	1				50	4		1			
" 4	" "		1				64	4	6	1			
" 7	" "		1				64	4		1			
Newlin Coal Co	Gronaway & Lewis	60	1				45	4	3		1		
Richmond, J. G	Campbell Gorman	100			1			4	6			1	
Rowland, P. F.	P. F Rowland	60			1			1	10			1	
Terrill, R. S.	R. S. Terrill	90			1			1	10			1	
Watson Coal & Mining Co. No. 1	Watson Coal & Mining Co.	131	1				75	4	6	1			
" " " 2	" "	175	1				85	4	6	1			
Totals		2205	12	1	5	1				11	3	4	

MONTGOMERY

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-pit	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Noel, B	Buford Noel	100	1				35	2	6			1	
Vandalia Coal Co	Vandalia Coal Co	120	1				100	2	8	1			
Totals		220	2							1		1	

NODAWAY

Name of company.	Operator.	No. of days worked	Shaft	Slope	Drift	Strip-pit	Depth of shaft	Feet	Inches	Steam	Horse	Hand	Elect'y
Byrd, C	Corydon Byrd	250		1				1	4			1	
Potts, Wm	Thos. Howard	225	1				35	1	4			1	
Totals		475	1	1								2	

COAL MINES—Continued.

COUNTY.

How ventilated.			Diameter of fan....	Pl'n		Powder used.		No. of mules.		Employes.						Prices paid for mining.		Tons of coal mined..	Price rec'd per ton at mine..........	Total amount rec'd for product of the year............
										Miners		Others.		Total.						
Natural..	Furnace.	Fan....		Long wall	Pillar & R.	Number of kegs.	Cost....	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.			
1	..	..	..	1	..	....	....	....	....	6	3	1	1	7	4	1 15	1 15	2,000	$1 60	$3,200
..	1	..	..	1	..	....	....	....	....	8	3	2	1	10	4	1 12½	1 12½	2,000	1 62½	3,250
1	..	..	..	1	..	....	....	....	....	4	2	2	2	6	4	1 10	1 10	1,200	1 80	1,600
..	..	1	12	1	..	20	50	7	7	238	220	15	15	253	235	1 00	1 00	85,000	1 55	131,750
..	1	..	..	1	..	....	....	....	....	12	6	1	1	13	7	1 25	1 25	3,979	1 75	6,964
..	1	..	..	1	..	....	....	....	....	25	15	2	1	27	16	1 25	1 25	6,000	1 75	10,500
2	3	1	..	6	..	20	50	7	7	293	249	23	21	316	270	......	......	100,179	1 57	157,264

COUNTY.

1	..	..	..	..	1	....	....	....	....	4	2	....	....	4	2	1 12½	1 00	750	$1 75	$1,312
1	..	..	..	..	1	....	....	....	....	2	....	....	....	2	....	1 12½	.....	300	1 75	525
2	..	..	..	..	2	....	....	....	....	6	2	....	....	6	2	......	......	1,050	1 75	1,837

COUNTY.

..	..	..	..	..	..	....	....	....	.. .	3	....	....	....	3	....	80	......	130	$1 75	$227
..	..	1	10	..	1	....	....	6	6	150	150	12	12	162	162	50	50	51,863	1 02	52,900
1	..	..	..	1	..	....	....	....	....	3	....	....	....	3	....	1 00	.....	600	1 12½	675
..	1	..	..	..	1	....	....	....	....	3	....	....	....	3	....	70	......	500	1 25	625
..	..	1	12	..	1	3,721	$7,442	11	11	191	167	40	40	231	207	50	50	105,423	95	300,801
..	..	2	10 12		1	1,445	2,890	14	5	181	46	48	23	229	69	50	50	43,540	95	
..	..	1	12	..	1	5,538	11,076	16	15	208	208	53	55	261	263	50	50	125,008	95	
..	..	1	12	..	1	892	1,794	5	....	97	4	17	6	114	10	50	50	17,359	95	
..	1	..	..	..	1	....	....	1	1	50	50	7	5	57	55	50	50	25,303	95	
..	..	1	12	1	..	400	700	6	6	90	90	23	23	113	113	60	60	38,500	1 15	39,000
..		1 1 1	10 10 12	..	1 1 1	....	....	24	9	255	160	53	31	308	191	50	50	82,969	1 11	91,260
1	..	..	..	..	1	....	....	....	....	....	2	....	....	....	2	......	70	125	1 25	165
1	..	..	..	..	1	....	....	....	....	....	2	....	....	....	2	60	60	240	1 50	360
1	..	..	..	..	1	....	....	....	....	2	....	....	....	2	...	87½	......	160	1 12½	180
1	..	..	..	..	1	....	....	....	....	3	....	....	....	3	....	1 12½	......	400	1 25	500
..	..	1	10	..	1	....	....	3	3	40	35	10	8	50	43	50	50	22,000	1 00	22,000
..	..	1	12	..	1	....	....	3	3	60	50	12	10	72	60	50	50	25,000	1 00	25,000
5	2	12	..	2	16	11,996	23,902	89	59	1336	964	275	213	1611	1177	......	......	539,120	99	533,693

COUNTY.

1	..	..	..	1	..	8	$16 00	....	....	2	2	1	....	3	2	1 00	$1 00	500	$1 50	$750
..	..	1	8	1	..	....	....	2	1	40	25	3	2	43	27	80	80	10,400	1 25	13,000
1	..	1	..	2	..	....	....	2	1	42	27	4	2	46	29	......	......	10,900	1 26	13,750

COUNTY.

1	..	..	..	1	..	....	....	....	....	4	3	....	....	4	3	2 00	$2 00	680	$2 50	$1,700
1	..	..	..	1	..	....	....	....	....	6	1	....	....	6	1	1 25	1 00	1,122	2 25	2,526
2	..	..	..	2	..	......	....	....	....	10	4	....	....	10	4	......	.....	1,802	2 34	4,226

PUTNAM

Name of company.	Operator.	No. of days worked.	Kind of open'g.				Depth of shaft.	Thickness of coal.		Power used.			
			Shaft.	Slope.	Drift.	Strip-pit		Feet.	Inches.	Steam.	Horse.	Hand.	Elect'y.
Anders, J	Jefferson Anders	95	..	..	1	..	....	3	....	..	..	1	..
Atkins, Wm	Wm. Skinner	125	1	..	..	..	27	2	10	..	1	..	..
Barnhart, A. J	A. J Barnhart	90	..	..	1	..	...	3	7	..	..	1	..
Blackbird Coal Co	Blackbird Coal Co	100	1	..	..	..	53	2	10	1	..	..	..
Empire Coal & Coke Co	Empire Coal & Coke Co	313	1	..	..	..	120	3	...	..	1	..	..
Henkle, R. F	N. S. Talcot	120	1	..	..	..	17	3	6	..	1	..	..
Jones, W R	Moore & Smith	100	1	..	..	..	23	3	....	..	..	1	..
Mendota Coal & M. Co. No. 1	Mendota Coal & M Co	164		1						1			
“ “ 2	“ “		1	1	..	..	67	2	10	1	..	..	..
“ “ 4	“ “									1			
Veach, Rosey	Rev. P. H. Peach	90	..	..	1	..	....	3	2	..	..	1	
Totals		1197	6	2	3	..	....	....	....	4	3	4	..

RALLS

Name of company.	Operator.	No. of days worked.	Shaft.	Slope.	Drift.	Strip-pit	Depth of shaft.	Feet.	Inches.	Steam.	Horse.	Hand.	Elect'y.
Ralls County Coal Co	Ralls County Coal Co	240	1	..	..	..	40	2	2	..	1	..	..

RANDOLPH

Name of company.	Operator.	No. of days worked.	Shaft.	Slope.	Drift.	Strip-pit	Depth of shaft.	Feet.	Inches.	Steam.	Horse.	Hand.	Elect'y.
Bradley, D. T	D. T. Bradley	80	1	..	..	..	60	4	....	..	1	..	..
Breckenridge, John, No. 1½	John Breckenridge	75	1	..	..	..	95	4	3	1	..	..	..
“ “ 3½	“	220	1	..	..	..	65	4	....	1	..	..	..
Brannon, Wm. N	Wm. N. Brannon	125	..	..	1	..	...	4	....	..	..	1	..
Brown & Welsby	Brown & Wellsby	80	1	.	..	..	65	3	4	..	1	..	..
Caffery-Baker Coal Co. No. 20	Caffery-Baker Coal Oo	180			1						1	..	..
“ “ 25	“ “		..	..	1		...	4	....	..	1	..	..
“ “ 30	“ “				1						1	..	..
Central Mine	M Strieff	175	..	1	..	..	....	4	....	..	1	..	..
Dean, H	Harry Dean	160	..	1	..	..	....	4	....	..	..	1	
Detienne, A. D	A. D. Detienne	110	..	1	..	..	...	4	....	..	1	..	..
Eagle Coal Co	Eagle Coal Co	119	1	..	..	..	125	3	8	1	..	..	..
Edwards, E	Emanual Edwards	175	..	..	1	..	....	4	....	..	..	1	..
Elliott Coal Co	Elliott Coal Co	196	1	..	..	..	145	4	....	1	..	..	..
Fray, W. H	R. H. & O. L. Fray	120	..	1	..	..	....	3	10	..	..	1	..
Hammett, J. W	Picket & Pryor	130	..	..	1	..	....	4	....	..	..	1	..
Higbee Coal & Mining Co	Wm. Walton	140	1	..	..	..	175	3	8	1	..	..	..
Interstate Coal Co	“	95	1	..	..	..	110	3	8	1	..	..	..
McCann, H	D. Skinner	125	..	..	1	..	....	4	....	..	..	1	..
Milburn Mine	Milburn Bros	120	1	..	..	..	50	4	6	..	1	..	..
Mitchell & Sandison	Mitchell & Sandison.	101	..	..	1	..	....	4	....	..	1	..	..
Morris, J. L	J. L. Morris	101	..	1	..	..	....	3	8	..	1	..	..
Robinson, Jas	Jas. Robinson	140	..	..	1	..	....	4	3	..	..	1	..
Rutherford, W. T	W. H. McKiernan	171	..	..	1	..	....	8	10	..	..	1	.
Stewart, J. N	J. N. Stewart	125	..	..	1	..	....	4	....	..	..	1	..
Vaughn, Wm	Wm. Vaughn	173	..	..	1		....	4	....	..	..	1	..
Ward, Harry	Harry Ward	125	1	..	..	..	88	3	10	..	1	..	..
Williams, J. B	L. B. Williams	225	1	..	..	..	96	4	2	..	1	..	..
Totals		3586	11	5	12	..	....	....	....	6	12	10	..

COAL MINES—Continued.

COUNTY.

How ventilated.			Diameter of fan....	Pl'n		Powder used.		No. of mules.		Employes. Miners		Employes. Others.		Employes. Total.		Prices paid for mining.		Tons of coal mined.	Price rec'd per ton at mines	Total amount rec'd for product of the year. ....
Natural..	Furnace.	Fan		Long wall	Pillar & R	Number of kegs.	Cost	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.			
1	..	..	..	1	..	....	....	....	....	4	....	....	....	4	....	1 00	......	600	$1 50	$900
1	..	..	..	..	1	....	....	....	....	4	...	....	....	4	....	87½	......	549	1 25	688
1	..	..	..	..	1	....	....	....	....	2	....	....	....	2	....	75	....	300	1 00	300
..	..	1	12	..	1	....	... ...	3	2	60	25	8	5	68	30	1 00	80	8,222	1 16½	9,576
..	1	..	..	..	1	....	....	....	....	19	19	3	3	22	22	1 00	80	4,347	1 15	5,000
1	..	..	..	..	1	....	....	....	....	3	....	....	....	3	....	1 00	......	400	1 40	560
1	..	..	..	..	1	....	....	....	....	4	....	....	....	4	....	75	......	400	1 00	400
..	1 1 1	}	..	..	1 1 1	}	....	16	16	301	312	60	60	361	372	88	70	96,604	1 21½	117,360
1	..	..	..	..	1	....	....	....	....	2	....	....	....	2	....	1 00	.....	150	1 25	188
6	4	1	..	1	10	....	....	19	18	399	356	71	68	470	424	......	......	111,572	1 21	134,972

COUNTY.

..	1	..	..	1	..	....	....	....	....	25	25	2	2	27	27	90	86	8,489	$1 23	$10,441

COUNTY.

..	1	..	..	..	1	25	$50 00	....	....	....	6	...	1	..	7	70	70	800	$1 00	$800
..	..	1	10	..	1	189	425 25	4	2	55	8	10	2	65	10	50	50	4,616	85	3,924
..	..	1	12	..	1	1,010	2,272 50	8	8	85	55	15	10	100	65	50	50	33,646	85	28,599
1	..	..	..	..	1	16	32 00	...	....	2	....	....	....	2	...	80	......	400	1 00	400
..	..	..	..	..	4	1,000	1,100 00	....	....	3	....	1	....	4	....	70	......	500	1 00	500
..	1 1 1	}	.	..	1 1 1	....	....	12	12	175	175	20	20	195	195	50	50	55,000	1 00	55,000
..	1	..	..	..	1	12	27 00	1	....	2	....	....	....	2	....	70	......	920	1 32	1,200
1	..	..	..	..	1	25	42 50	....	....	2	2	....	....	2	2	60	60	800	2 10	1,680
..	1	..	..	..	1	....	....	1	....	2	....	1	....	3	....	70	.....	936	1 25	1,170
..	1	..	..	..	1	121	272 50	....	....	7	7	2	2	9	9	80	80	1,973	1 15	2,269
1	..	..	..	..	1	12	27 00	....	....	2	1	1	1	3	2	70	70	630	1 30	825
..	..	1	6	1	..	....	....	8	8	120	120	30	30	150	150	80	80	65,606	1 10	72,166
1	..	..	..	..	1	10	22 50	....	....	2	....	1	....	3	....	80	.....	400	1 25	500
1	..	..	..	..	1	12	27 00	.. .	....	2	...	....	....	2	....	70	......	881	1 07	947
..	..	1	10	1	..	....	....	5	4	66	66	15	13	81	79	80	80	25,148	1 25	31,435
..	..	1	12	1	..	....	....	2	2	70	68	10	10	80	78	80	80	16,875	1 20	20,250
1	..	..	..	..	1	......	....	....	....	3	....	....	....	3	....	80	......	720	1 25	900
..	1	..	..	..	1	8	16 00	....	....	2	....	....	....	2	....	80	.....	500	1 50	750
..	1	..	..	..	1	34	72 50	1	....	12	....	3	....	15	....	70	......	3,013	1 15	3,465
..	1	..	..	..	1	12	27 00	1	....	2	....	1	...	3	....	75	... .	656	1 00	656
..	1	..	..	..	1	10	12 25	1	.. .	3	....	1	...	4	....	70	......	780	1 36	1,064
..	1	..	..	..	1	49	98 00	....	....	3	2	....	....	3	2	70	70	1,411	90	1,270
..	1	..	..	..	1	....	....	....	....	4	.	....	....	4	....	70	......	840	1 10	924
..	1	..	..	..	1	30	60 00	....	....	2	4	....	....	2	4	77½	70	775	1 00	775
..	1	..	..	..	1	25	50 00	....	....	2	...	....	....	2	....	70	.....	351	1 25	438
..	1	..	..	1	..	10	20 00	....	....	2	....		....	2	....	80	......	597	1 25	746
6	17	5	..	4	24	2,610	4,654 00	44	36	630	514	111	89	741	603	......	......	218,774	1 06	232,653

STATISTICS OF

RAY

Name of company.	Operator.	No. of days worked.	Kind of open'g. Shaft.	Slope.	Drift.	Strip-pit.	Depth of shaft.	Thickness of coal. Feet.	Inches.	Power used. Steam.	Horse.	Hand.	Elect'y.
Bissell Coal Co.	Bissell Coal Co.	110	1				64	2		1			
Black Diamond	D. C. Izett	130	1				67	2			1		
Bryant & Hiney	Bryan, Bush & Williams	107			1			1	6			1	
Bryer, J. H.	Jas. Collins	93			1			1	6			1	
Hayson & Douglas	Hayson & Douglas	200	1				80	2			1		
Evens, L. D.	Jas. Lorven	100	1				80	1	2		1		
Harrison, J. W.	E. Harrison	120	1				30	2			1		
Hartwell, Arnold & Co	Nelson & Jacobs	90		1				1	6			1	
Hubbell & Fisher Coal Co.	Hubbell & Fisher Coal Co.	90	1				100	2	3		1		
Hubbell, Hyatt & Hubbell	W. P. Hubbell, adms	90	1				100	2	3	1			
Huston, Joseph	Huston, Joseph	100			1			1	6			1	
Kansas & Texas C. Co. No. 30	Kan. & Tex. C. Co. No. 30	97	1				70	2	4	1			
King, R. A.	King, R. A.	100			1			1	10			1	
Lockwood & Lusk	Lockwood & Lusk	96	1				40	2		1			
Milligan Mine	Dickson & Stewart	101	1				25	2			1		
Mosby Coal Co. No. 10	Mosby Coal Co. No 10	120		1				1	6		1		
Mosby & Daugherty	Rooney Bros	140	1				60	1	10		1		
Murray, Jesse	Thos. Roney	160	1				65	2			1		
Pence & Anderson	Pence & Anderson	200	1				83	2			1		
Pence & Calneir	Pence & Calneir	150	1				80	2			1		
Pickering Coal Co. No. 11	Pickering Coal Co. No. 11	98	1				107	1	10	1			
Randall Mine	P. Walsh	97	1				90	2			1		
Rankin, A. F.	A. F. Rankin	73			1			2				1	
Richmond & Camden C. Co. No. 1	Richmond & Camden No 1	76	1				50	1	10	1			
" " " " 2	" " " 2	74	1				50	1	10	1			
" " " " 3	" " " 3	115	1				55	2		1			
" " " " 4	" " " 4	122	1				70	2		1			
" " " " 5	" " " 5	71	1				80	2		1			
" " " " 9	" " " 9	196	1				95	2			1		
" " " " 12	" " " 12	115	1				125	2		1			
Sater, H. W.	H. W. Sater & Son	90	1				156	1	10		1		
Starr, Alex	Wm. Phillips	210			1			1	6			1	
Williams Coal Co., R. J.	Williams Coal Co., R. J.	175	1				90	1	6		1		
Wilson, Mrs. Mary, No. 8	Wilson, Mrs. Mary, No. 8.	122	1				105	1	10	1			
Totals		4028	26	2	6					12	15	7	

SALINE

Name of company.	Operator.	No. of days worked.	Shaft.	Slope.	Drift.	Strip-pit.	Depth of shaft.	Feet.	Inches.	Steam.	Horse.	Hand.	Elect'y.
Blackburn Coal Co.	Blackburn Coal Co.	115	1				33	2			1		
Marmaduke, V	Henry Bowman	107	1				14	2	6		1		
Taylor, Henry	Jos. McQuillan	98	1				52	1	6		1		
Terrill, H. C.	Brady & Parrish	100		1				1	8			1	
Whitaker, Mark	Whitaker, Mark	90		1				1	6		1		
Totals		510	3	2							4	1	

SCHUYLER

Name of company.	Operator.	No. of days worked.	Shaft.	Slope.	Drift.	Strip-pit.	Depth of shaft.	Feet.	Inches.	Steam.	Horse.	Hand.	Elect'y.
Golston, Ira	Ira Golston	80	1				60	2	6		1		
Hargraves, M. A.	M. A. Hargraves	60			1			3	4			1	
Kavin Coal & Ming Co	J. B. Badger	94	1				28	4			1		
Totals		234	2		1						2	1	

COAL MINES—Continued.

COUNTY.

How ventilated.			Diameter of fan	Pl'n		Powder used.		No. of mules.		Employes.						Prices paid for mining.		Tons of coal mined	Price rec'd per ton at mines	Total amount rec'd for product of the year
										Miners		Others		Total.						
Natural	Furnace	Fan		Longwall	Pillar & R.	Number of kegs	Cost	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer	Winter	Summer			
1	..	..	..	1	..	....	....	1	....	20	5	4	2	24	7	87½	87½	4,000	$1 50	$6,000
..	1	..	..	1	..	....	....	....	....	3	....	1	....	4	....	87½	......	807	1 50	1,210
1	..	..	..	1	..	....	....	....	....	3	2	....	....	3	2	1 25	1 25	630	1 75	1,102
1	..	..	..	1	..	....	....	....	....	4	2	....	....	4	2	1 25	1 25	800	1 75	1,400
..	1	..	..	1	..	....	....	....	....	4	3	2	1	6	4	87½	87½	2,000	1 75	3,500
..	1	..	..	1	..	....	....	....	....	2	....	1	....	3	....	1 50	......	350	2 00	700
1	..	..	..	1	..	....	....	....	.	2	....	1		3	....	1 00	......	480	1 60	768
1	..	..	..	1	..	....	....	....	....	3	....	....	....	3	....	1 25	......	400	1 75	700
..	1	..	..	1	..	....	....	2	..	50	....	2	....	52	....	87½	......	9,000	1 25	11,250
..	1	..	..	1	..	....	....	3	....	60	....	4	....	64	....	87½	......	9,400	1 25	11,750
1	..	..	..	1	..	....	....	....	....	2	....	1	....	3	....	1 25	......	531	2 00	1,062
..	..	1	12	1	..	....	....	7	4	107	72	14	13	121	85	87½	87½	26,600	1 50	39,900
..	1	..	..	1	..	....	....	....	....	2	....	....	....	2	....	1 25	......	240	2 00	480
..	1	..	..	1	..	....	....	....	....	40	10	4	2	44	12	87½	87½	5,000	1 30	6,500
..	1	..	..	1	..	....	....	....	....	3	....	1	....	4	....	1 00	......	574	1 50	861
..	1	..	..	1	..	....	....	....	....	4	2	2	1	6	3	87½	87½	1,120	1 25	1,400
..	1	..	..	1	..	....	....	....	....	6	2	2	1	8	3	87½	87½	1,000	1 50	1,500
..	1	..	..	1	..	....	....	....	....	3	1	4	....	7	1	87½	87½	800	1 75	1,400
..	1	..	..	1	..	....	....	....	....	10	5	3	2	13	7	87½	87½	2,650	1 25	3,975
..	1	..	..	1	..	....	....	....	....	30	10	1	1	31	11	87½	87½	4,233	1 25	5,290
..	1	..	..	1	..	....	....	1	....	58	14	10	6	68	20	87½	87½	10,016	1 25	13,621
..	1	..	..	1	..	....	....	....	....	4	....	1	....	5	....	87½	......	680	1 20	816
..	1	..	..	1	..	....	....	2	....	40	....	6	....	46	....	87½	......	4,275	1 25	5,344
..	1	..	..	1	..	....	....	3	3	60	30	10	5	70	35	87½	87½	6,894	1 40	72,961
..	1	..	..	1	..	....	....	1	1	27	2	5	....	32	2	87½	87½	1,148		
..	..	1	12	1	..	....	....	3	1	60	3	10	...	70	3	87½	87½	10,632		
..	..	1	12	1	..	....	....	4	4	70	70	12	10	82	80	87½	87½	17,232		
..	..	1	12	1	..	....	....	3	....	60	....	8	....	68	....	87½	......	8,904		
..	1	..	..	1	..	....	....	1	1	2	2	...	....	2	2	87½	87½	802		
..	1	..	..	1	..	....	....	....	....	28	28	5	5	33	33	87½	87½	6,474		
..	1	..	..	1	..	....	....	....	....	2	....	....	....	2	....	1 25	......	200	1 80	360
1	..			1		....	....	....	....	3	....	1	....	4	....	1 25	......	746	2 00	1,499
.	1	..		1		....	....	....	....	35	20	5	....	40	20	87½	87½	7,500	1 37½	10,312
..	1	..	.	1		....	....	2	2	25	15	3	2	28	17	87½	87½	4,880	1 20	5,841
7	23	4	..	34	..	....	....	33	16	832	298	123	51	955	349	......	......	150,998	1 40	211,502

COUNTY.

..	1	..	..	1	..	....	....	....	....	14	2	1	....	15	2	$1 00	$1 00	2,000	$2 00	$4,000
..	1	..	..	..	1	....	....	....	....	6	2	2	1	8	3	1 25	1 00	1,000	2 00	2,000
1	..	..	..	..	1	....	....	....	....	3	....	1	....	4	....	1 25	.....	480	2 00	960
1	..	..	..	1	..	....	....	....	..	1	1	....	....	1	1	1 50	1 50	102	2 50	255
1	..	..	..	1	..	....	....	....	....	1	...	...	....	1	....	1 50	......	100	2 00	200
3	2	..	..	3	2	....	....	....	...	25	5	4	1	29	6	......	......	3,682	2 15	7,415

COUNTY.

1	..	..	..	..	1	....	....	....	....	1	....	....	....	1	....	$1 00	......	120	$1 75	$210
1	..	..	..	..	1	....	....	....	....	3	....	....	....	3	....	1 00	......	500	1 25	625
..	1	..	..	..	1	....	....	....	....	9	5	1	1	10	6	80	70	1,000	1 25	1,250
2	1	..	..	..	3	....	....	....	....	13	5	1	1	14	6	......	......	1,620	1 29	2,085

STATISTICS OF

ST. CLAIR

Name of company.	Operator.	No. of days worked.	Kind of open'g.				Depth of shaft.	Thickness of coal.		Power used.			
			Shaft.	Slope.	Drift.	Strip-pit.		Feet.	Inches.	Steam.	Horse.	Hand.	Elect'y.
Allison, R. W	Scott, Poe	120	..	1	..	..	....	3	6	..	..	1	..
Barnett, Joseph	Thompson & Barnett	75	..	..	1	..	...	2	10	..	1	..	..
Browning, W. G	Wm. Dowers	100	..	1	..	..	..	2	....	..	..	1	..
Collins, John C	Collins & Stanley	120	..	1	..	..	....	2	....	..	..	1	..
Douthat & Vannice	Douthat & Vannice	150	1	..	..	..	13	3	....	..	1	..	..
Johnson & Co	Wm. Wadkins	90	..	1	..	..	....	2	6	..	..	1	..
Kinirim, Rev. Jno	Wm. Howard	95	..	..	..	1	....	2	6	..	..	..	..
Read Mine	Frank Richmond	160	1	..	..	..	36	3	4	..	1	..	..
Seymour, W. A	Gibson & Wilcox	200	..	..	1	..	....	2	4	..	..	1	..
Totals		1110	2	4	2	1	....	....	...	..	3	5	..

SULLIVAN

Name of company.	Operator.	No. of days worked.	Shaft.	Slope.	Drift.	Strip-pit.	Depth of shaft.	Feet.	Inches.	Steam.	Horse.	Hand.	Elect'y.
Locust Valley Coal Co	Henry Roberts	120	1	..	..	..	200	3	6	1	..	..	..

VERNON

Name of company.	Operator.	No. of days worked.	Shaft.	Slope.	Drift.	Strip-pit.	Depth of shaft.	Feet.	Inches.	Steam.	Horse.	Hand.	Elect'y.
Allen, L	E. Green	100	..	..	..	1	....	4	....	..	..	..	..
Angel, L. W	D. K. Perkins	105	..	1	..	..	....	2	4	..	1	..	..
Author Coal & Mining Co	Authur C. & M. Co	140	..	..	..	1	....	5	4	..	..	..	..
Bedford Coal & Mining Co	Henry Brown	158	1	..	..	..	50	3	....	1	..	..	..
Burks, Margaret	Jefferson Flake	128	..	..	..	1	....	2	....	..	..	..	..
Burton, W. C	J. C. Lucas	40	..	..	..	1	...	1	4	..	..	..	..
Central Coal & C. Co., No. 7	Central C. & C. Co., No. 7	84	1	..	..	..	140	4	....	1	..	..	..
" " 8	" " 8	132	1	..	..	..	168	4	....	1	..	..	..
Crawford, C. B	C. B. Crawford	30	..	..	..	1	....	2	....	..	..	..	..
Dodson, J. R.	J. R. Dodson	45	..	..	..	1	..	2	....	..	..	..	..
Dodson, James N	James N. Dodson	60	..	..	..	1	....	1	6	..	..	..	..
Ewing, L. B	Ewing Bros	100	..	..	..	1	....	1	....	..	..	..	..
Gordon, Allen	J. F. Blair	90	..	..	..	1	....	2	....	..	..	..	..
Ingram, N	N. Ingram	90	..	.	..	1	....	4	....	..	..	..	..
Larkin, W. E	W. E. Larkin	90	..	..	..	1	....	1	....	..	..	..	..
Lightner, A. D	A. D. Lightner	30	..	..	..	1	....	.	8	..	..	..	..
Mann, M	Hammett & Overmeyer	40	..	..	..	1	...	2	....	..	..	..	..
Mosher, H. G	Thos. Sing	45	..	..	..	1	.	1	2	..	..	.	..
Prewett, W. H	W. H. Prewett	30	..	..	..	1	....	1	2	..	..	.	..
Reed, P. H. W	P. H. W. Reed	33	..	..	..	1	....	1	....	..	..	..	..
Rich Hill Coal & M. Co., No. 16	Rich Hill C. & M. Co., 16	110	..	1	..	..	....	4	....	1	..	..	:
" " 17	" 17	111	1	..	..	..	136	4	....	1	..	..	..
Shaw, J. W	W. D. Garton	115	1	..	..	..	35	2	....	..	1	..	..
Stoll, John	L. Mell	60	..	..	..	1	....	1	2	..	..	..	..
Vernon Coal & Mining Co	Vernon C. & M. Co	60	..	1	..	..	....	4	6	1	..	.	..
Webb, J. W	J. W. Webb	20	..	..	..	1	....	1	....	..	..	..	..
Totals		2046	5	3	..	18	....	....	....	6	2	..	..

COAL MINES—Continued.

COUNTY.

How ventilated.			Diameter of fan....	Pl'n		Powder used.		No of mules.		Employes.						Prices paid for mining.		Tons of coal mined.	Price rec'd per ton at mines..........	Total amount rec'd for product of the year........ ......
										Miners		Others		Total.						
Natural..	Furnace.	Fan . ..		Long wall	Pillar & R.	Number of kegs.	Cost.	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.	Winter...	Summer.			
1					1					1		1		2		$1 00		260	$1 50	$390
1					1					2	2	2		4	2	1 00		360	1 25	405
1					1					1				1		1 00		120	2 25	270
	1				1					9	3	2	1	11	4	1 00	$1 00	1,250	1 41	1,762
1					1					4		1		5		75		900	1 50	1,350
1					1					2		1		3		1 00		170	1 75	295
										3				3		75		570	1 25	712
	1				1					4	1	2		6	1	75		1,000	1 50	1,500
	1				1					4	2	1		5	2	90	90	857	1 75	1,500
5	3				8					30	8	10	1	40	9			5,487	1 49	8,184

COUNTY.

1					1	150	277 50			6	2	2	1	8	3	80	70	1,000	$1 25	$1,250

COUNTY.

										3				3		70		480	$1 30	624
	1				1					5	1	1		6	1	75	75	900	1 25	1,125
						700	$770 00	15	15			20	20	20	20	60	60	7,015	1 06	7,503
		1	10		1	617	1147 62	7	7	50	50	3	3	53	53	50	40	27,393	84⅓	23,101
										2	2			2	2			440	1 93⅓	850
										4				4				480	1 25	600
		1	15		1	2302	9208 00	12	12	70	70	40	40	110	110	40	40	42,319	1 15	48,700
		1	10		1	1018	2036 00	3	3	15	15	11	11	26	26	40	40	18,297	1 15	21,000
								1		1				1				200	1 75	350
										1				1				250	1 50	375
										3				8				400	1 25	500
										3				3				500	1 75	875
										4				4				640	1 62½	1,040
										1				1				120	1 00	120
										1				1				120	1 20	150
										2				2				80	2 00	160
										2				2				90	1 62½	146
										2				2				120	1 40	168
										3				3				140	1 75	245
										2				2				100	1 50	150
		1	10		1	1978	2620 85	7	7	90	90	29	29	119	119	50 89½	40 89½	45,130	97¾	43,605
		1	15		1	2984	3954 00	17	17	133	133	32	32	165	165	50	40	61,435	92	56,940
1					1	11	18 70			4	1	2	1	6	2	60	60	876	1 61	1,412
										3				3				400	1 10	440
		1	12		1	2000	3500 00	12	12	70	70	6	6	76	76	40	40	30,000	85	25,500
										1				1				40	2 50	100
1	1	6			8	11,610	23255 17	74	73	475	432	144	142	619	574			237,965	99	235,779

TABLE VII.

This table shows the production of coal by counties, giving to each county its rank as a producer, for each year in the past five years, together with the average production of each county from June 30, 1890, to June 30, 1895.

For example, take Bates county; for the year ending June 30, 1891, it ranked first in the amount of coal produced; in 1892 it stood second and the same for 1893; in 1894 it ranked fourth and for the year ending June 30, 1895, it stood third as a producer.

TABLE VII—SHOWING RANK OF COAL PRODUCING COUNTIES IN ORDER OF PRODUCTION FOR EACH OF PAST FIVE YEARS.

No. counties	Counties.	1891.		1892.		1893.		1894.		1895		Average production for five years.
		Rank.	Product, tons.	Rank.	Product, tons.	Rank.	Product, tons.	Rank	Product, tons.	Rank.	Product, tons.	
1	Bates	1	726,273	2	659,924	2	627,514	4	291,271	3	252,231	511,444
2	Macon	2	454,029	1	685,335	1	788,563	1	511,566	1	539,120	595,722
3	Lafayette	3	352,603	3	347,600	3	371,928	2	296,931	2	256,761	325,165
4	Ray	4	282,247	5	272,948	4	319,405	6	196,852	6	150,998	244.490
5	Randolph	5	224,758	4	297,011	6	219,762	5	209,656	5	218,774	233,795
6	Henry	6	144,139	6	137,258	8	125,962	8	84,473	9	99,058	118,178
7	Putnam	7	123,526	7	134 984	7	145,641	7	119,832	7	111,572	127,111
8	Vernon	8	64,303	8	119,036	5	234,376	3	297,599	4	237,965	190,656
9	Barton	9	63,026	9	108,784	9	61,301	10	55,767	10	76,242	73,024
10	Grundy	10	28,983	13	28,670	12	35,770	12	35,000	12	37,200	33,125
11	Linn	11	28,036	11	35,588	10	48,302	9	71,807	8	100,179	56,782
12	Boone	12	23,577	14	21,058	14	25,602	17	19,038	14	21,090	22,073
13	Caldwell	13	22,661	10	38,333	13	29,020	14	22,869	16	17,876	26,152
14	Audrain	14	19,569	12	29,792	11	42,262	11	43,910	11	40,918	35,290
15	Adair	15	17,110	17	14,820	16	20,957	15	20,744	13	24,540	19,634

TABLE VII—Continued.

No. counties.	Counties.	1891.		1892.		1893.		1894.		1895.		Average production for five years.
		Rank.	Product, tons.	Rank.	Product, tons.	Rank.	Product, tons.	Rank	Product, tons.	Rank.	Product, tons.	
16	Callaway	16	15,581	15	16,551	15	23,961	13	23,223	15	18,771	19,617
17	Montgomery	17	13,124	16	16,039	17	15,923	19	12,175	18	10.900	13,635
18	Johnson	18	10,530	18	10,485	18	12,101	18	15,427	19	8,873	11,483
19	Clay	19	8,289	.....	....	19	7,139	16	19,371	23	4,000	9,699
20	Saline	20	7,981	22	4,440	26	1,865	29	1,875	24	3,682	3,969
21	St. Clair	21	3,866	21	5,405	21	6,517	22	5,337	21	5,487	5,122
22	Dade	22	3,402	20	6,881	20	6,695	27	2,327	22	5,066	4,874
23	Nodaway	23	2,222	26	1,850	24	2,548	25	2 984	29	1,802	2,281
24	Cooper	24	2,200	24	3,666	23	2,892	26	2,639	27	2,492	2,778
25	Cole	25	2,000	27	1,548	27	1,200	28	2,000	32	1,120	1,574
26	Cedar	26	1,264	23	4,181	33	890	33	730	31	1,590	1,731
27	Chariton	27	1,170	25	2,312	28	1,136	34	185	28	1,859	1,332
28	Jasper	28	633	.....	....	.....	....	.....	....	.....	....	....
29	Ralls	29	614	32	280	25	2,160	23	4,400	20	8,489	3,189
30	Sullivan	30	560	19	8,800	31	1,000	21	6,600	34	1,000	3.592
31	Pettis	.....	....	31	433	34	181	30	1,738	.....	....	....

32	Moniteau	31	476	....	....	....	....	....	....	....	....	....
33	Schuyler	32	280	30	766	32	962	24	3,556	30	1,620	1,437
34	Livingston	33	200	29	1,000	30	1,000	32	800	33	1,050	810
35	Miller	34	130	33	127	....	....	....	....	....	....	....
36	Morgan	35	36	....	....	....	....	....	....	....	....	....
37	Monroe	36	12	....	....	....	....	....	....	....	....	....
38	Shelby	37	8	....	....	....	....	....	....	....	....	....
39	Carroll	....	....	28	1,380	29	1,088	31	920	26	2,664	1,513
40	Jackson	....	....	....	....	22	4,819	20	6,720	17	14,632	8,720
41	Howard	....	....	....	....	....	....	....	....	25	3,460	3,460
	Total tons	....	2,650,018	....	3,017,285	....	3,190,442	....	2,383,322	....	2,283,081	2,704,829

TABLE VIII—SHOWING THE ANNUAL PRODUCT OF EACH YEARS, 1889 TO 1895, TOGETHER WITH THE AGGREGATE COUNTIES, THE TOTAL PRODUCTION FOR THE STATE,

Counties.	Number of tons coal mined.						
	1889	1890	1891	1892	1893	1894	1895
Adair......	16,522	14,840	16,110	14,820	20,957	20.744	24,540
Audrain ...	22,298	22,813	19,569	29,792	42,262	43,910	40,918
Barton.....	122,664	65,097	63,626	108,784	61,301	55,767	76,242
Bates	729,633	671,373	726,273	659,924	627,514	291,271	252,231
Boone......	9,944	21,302	23 577	21,058	25,602	19,038	21,090
Caldwell...	26,074	17,074	22,661	38,333	29,020	22,869	17,876
Callaway...	12,633	18,355	15,581	16.551	23,961	23,223	18,771
Carroll.....	....	....	....	1,380	1,088	920	2,664
Cedar......	....	....	1,264	4,181	890	730	1,590
Chariton...	....	120	1,170	2,312	1,136	185	1,859
Clay	....	5,036	8,289	....	7,139	19,371	4,000
Cole........	....	....	2,000	1,548	1,200	2,000	1,120
Cooper.....	1,027	1,594	2,200	8,666	2,892	2,639	2,492
Dade.......	2,290	1,400	3,402	6,881	6,695	2,327	5,066
Grundy....	18,000	23,593	28,983	28.670	35,770	35,000	37,200
Henry	210,376	127,281	144,139	137,258	125,962	84,473	99,058
Howard ...	....	4,000	....	....	....	....	3,460
Jackson....	....	....	....	....	4,819	6,720	14,632
Jasper.....	....	....	633	....	....	....	....
Johnson....	12,803	13,187	10,530	10,485	12,101	15,427	8,873
Lafayette..	320,448	329,845	352,603	347.600	371,928	299,931	256,761
Linn.......	2,136	13,403	28,036	35,588	48,402	61,807	100,179
Livingston.	....	1,100	200	1,000	1,000	800	1,050
Miller......	....	87	130	127	....	....	....
Macon	223,660	457,896	454,029	685,335	788,563	511,566	539,120
Morgan....	....	240	488	....	....	....	....
Montgom'y	20,003	14,744	12,124	16,039	15,923	12,175	10,900

COUNTY PRODUCING COAL, FOR A PERIOD OF SEVEN AMOUNT RECEIVED FOR THE OUTPUT OF THE RESPECTIVE AND TOTAL RECEIPTS FOR SAME.

Amount received at the mines for the output.						
1889	1890	1891	1892	1893	1894	1895
$27,980	$29,379	$28,511 25	$24,365 00	$31,247 25	$30,250	$32,457
36,497	30,117	30.038 97	50,164 85	62,085 65	64,724	54,787
153,542	83.818	92,179 94	128,869 50	73,863 70	58,224	87,214
755,278	713,039	762,740 88	699,927 35	700,562 56	305,198	234,808
14,916	31,172	34,574 50	32,590 25	38,365 50	28,428	26,503
54,571	34,660	40,874 00	76,097 16	57.749 75	41,018	30,255
19.677	30,517	24,977 03	26,179 35	36,769 50	36,636	26,835
....	....	....	3,810 00	2,544 00	1,600	4,795
....	....	1,666 00	6,230 00	1,299 00	1,096	2,270
....	240	2,340 00	4,503 00	2,190 00	407	3,369
....	7,554	14,920 20	....	10,398 77	30,995	6,000
....	....	3,000 00	3,096 00	1,620 00	3,000	1,680
1,640	3,511	4.400 00	7,152 80	5,721 50	5,278	4,932
3,907	1,960	5,718 50	10,529 00	10,042 50	3,492	7,499
35,000	48,366	53,300 00	68,983 00	73,328 50	66,625	69,032
217,694	193,221	211,834 01	199,735 00	185,643 77	122.059	135,927
....	5,600	....	....	....	....	6,325
....	....	....	....	9,638 00	13,104	18,290
....	....	349 50	....	....	....	....
21,713	21,113	17,100 50	18,441 42	19,228 75	22,425	11,891
536,997	508,743	545,551 17	536,092 95	551.528 96	457,459	355,270
4,272	21,720	44,630 09	56,214 96	75,850 81	95,221	157,264
....	2,250	450 00	2,259 00	1,750 00	1,600	1,837
....	218	325 00	317 50	....	....	....
309,443	585,925	576,678 51	717,173 02	824,478 26	546,772	533,693
....	480	1,064 00	....	....	....	....
14,769	21,595	17,753 40	21,706 65	21,496 05	16,500	13,750

Counties.	Number tons of coal mined.						
	1889	1890	1891	1892	1893	1894	1895
Monroe....	....	108	36	....	....	....	....
Nodaway ..	....	....	2,222	1,850	2,548	2,984	1,802
Pettis......	....	....	....	433	181	1,738	....
Putnam ...	75,877	91,584	123,526	134,984	145,641	119,832	111,572
Ralls.......	....	675	614	280	2,160	4,400	8,489
Randolph..	184,609	245,898	224,759	296,011	219,762	209,566	218,774
Ray.......	207,829	240,462	282,247	272,948	319,405	196,852	150,998
Saline......	832	660	7,981	4,440	1,865	1,875	3,682
Schuyler...	....	300	280	766	962	3,556	1,620
Shelby.....	....	40	8	....	....	....	....
Sullivan....	....	....	560	8,800	1,000	6,600	5,487
St. Clair...	....	....	3,866	5,405	6,517	5,337	1,000
Vernon ...	13,313	33,292	64,303	119,036	234,376	297,599	237,965
Totals...	2,222,981	2,437,399	2,650,018	3,017,285	3,190,442	2,883,322	2,283,081

VALUE—Continued.

Amount received at the mines for the output.						
1889	1890	1891	1892	1893	1894	1895
....	$163	$24 00	....	....	....	....
....	....	5,504 50	$4,720 00	$6,487 25	$7,560	$4,226
....	....	....	932 50	324 50	3,334	....
$107,581	116,883	143,554 00	172,483 20	198,357 43	157,677	134,972
....	1,020	1,151 00	490 00	3,132 00	4,840	10,441
272,244	318,833	266,422 77	379,232 08	245,720 61	234,608	232,653
324,740	387,346	446,860 41	421,631 61	486,231 08	296,634	211,502
1,872	1,265	14,664 00	8,873 25	4,018 50	4,162	7,415
....	375	450 00	957 50	1,202 50	4,945	2,085
....	80	16 00	....	....	....	....
....	....	1,120 00	13,600 00	1,750 00	8,250	8,184
....	....	5,999 50	9,362 50	10,171 50	8,612	1,250
14,841	38,188	79,540 20	129,126 17	244,883 02	330,342	235,779
2,929,174	3,234,351	3,480,866 83	3,825,828 57	3,999,681 17	3,013,075	2,675,690

TABLE IX—SHOWING ACCIDENTS IN COAL MINES, BY

BATES

Name of company or operator.	Name of injured employe	Occupation of employe.	Age	Single	Married	No. of children
Rich Hill Coal and Mining Co	Baugher, Eugene	Miner	23	...	1	1
" "	Beard, Andrew J	"	41	....	1	2
Martin-Gee Coal Co.	Bryant, W. H.	"	34	...	1	3
Wise (J. M.) Coal Co	Chrisler, Frank	"	30	.	1	2
"	Davis, Thos	"	26	.	1	2
Rich Hill Coal Co	Doyle, John F.	Driver	21	1		..
Martin-Gee Coal Co.	Anderson, Chas.	Miner	40		1	1
Rich Hill Coal Co	Moore, John Thos.	"	19	1		...
"	Norris, B.	"	40	..	1	1
J. M. Wise Coal Co	Ward, Thos	"	27	....	1	..
Martin-Gee Coal Co.	Yarber, C	"	31	.	1	5
Totals			..	2	9	17

LAFAYETTE

Name of company or operator.	Name of injured employe	Occupation of employe.	Age	Single	Married	No. of children
Lawrence Autch	Roscoe Autch	Miner	36		1	1
Bonanzo Coal Co	J. Peterson	"	27	1	...	.
Totals			..	1	1	1

LINN

Name of company or operator.	Name of injured employe	Occupation of employe.	Age	Single	Married	No. of children
Marceline Coal Co.	Peter Balma	Miner	48	..	1	4

MACON

Name of company or operator.	Name of injured employe	Occupation of employe.	Age	Single	Married	No. of children
Kansas & Texas Coal Co	H. Cathron	Miner	30	1		...
" "	Fox, B. F	"	42	...	W	3
" "	Keyes, Wesley	"	26		1	....
Totals			...	1	1	3

PUTNAM

Name of company or operator.	Name of injured employe	Occupation of employe.	Age	Single	Married	No. of children
Mendota Coal Co.	Ash, Jno	Driver	23	1	...	...
"	Johnson, Jno	Miner	39	...	1	6
"	McClure, Harry	"	29	..	1	3
"	Perkins, Thos	"	19	1		...
Totals			....	2	2	9

COUNTIES, FOR THE YEAR ENDING JUNE 30, 1895.

COUNTY.

Non-fatal	Fatal	Insured? No.	Insured? Yes.	Am't of insurance.	Nature of the accident.	Coroner's verdict.
1	..	1	...	....	Careless opening keg of powder	
1	..	1	.		Burned, explosion of gas.	
1	....	...	1	$2000	Windy shot	
1		1	.	......	Mine car crushed his foot	
...	1	1	..	....	Fall of roof.	Accident; no blame attached
1		1	..	......	Mine car broke his leg.	
1		1	..	......	Windy shot	
.	1	1	...	......	Fall of roof	Accident; no blame attached
1		1	...	......	"	
	1	1		......	"	Accidental
1		1	..	....	Windy shot	
8	3	10	1	2000		

COUNTY.

Non-fatal	Fatal	Insured? No.	Insured? Yes.	Am't of insurance.	Nature of the accident.	Coroner's verdict.
	1	1	..	....	Mine cars became unmanageable.	No inquest
1		1	..	......	Falling roof	
1	1	2				

COUNTY.

Non-fatal	Fatal	Insured? No.	Insured? Yes.	Am't of insurance.	Nature of the accident.	Coroner's verdict.
..	1	1	....	....	Fall of coal	Fall of coal; his own neglect

COUNTY.

Non-fatal	Fatal	Insured? No.	Insured? Yes.	Am't of insurance.	Nature of the accident.	Coroner's verdict.
.	1	1	..	......	Fall of roof	Accidental; his own carelessness
1		1	..	....	Returned on a shot too soon	
	1	1	..	....	Fall of roof	Accidental; his own carelessness
1	2	3				

COUNTY.

Non-fatal	Fatal	Insured? No.	Insured? Yes.	Am't of insurance.	Nature of the accident.	Coroner's verdict.
1	..	1	....	....	Mine car squeezed him	
1	..	1	..	....	Fall of roof	
1	.	1	....	....	"	
....	1	1	....	......	"	No inquest; lived four days
3	1	4				

ACCIDENTS BY

RANDOLPH

Name of company or operator.	Name of injured employe	Occupation of employe.	Age.	Single	Married	No. of children
William Robb	William Robb	Operator	30		1	...
Interstate Mining Co	Blythe, H. E.	Engineer	23	1		.
Caffery-Baker Coal Co	Kribbs, Gus. A	Miner	30		1	2
Totals			..	1	2	2

RAY

Name of company or operator.	Name of injured employe	Occupation of employe.	Age.	Single	Married	No. of children
Richmond & Camden Coal Co	Casswell, D.	Miner	22	1		
William James	James, Wm	Operator	47		1	4
Richmond & Camden Coal Co	Ruzeke, R	Miner	25	1		
Totals			..	2	1	4

VERNON

Name of company or operator.	Name of injured employe	Occupation of employe.	Age.	Single	Married	No. of children
Central Coal and Coke Co	Hammon, P.	Miner	58	...	1	6

COUNTIES—Continued.

COUNTY.

Non-fatal	Fatal	Insured? No.	Insured? Yes.	Am't of insurance	Nature of accident.	Coroner's verdict.
...	1	1	..	......	Fall of roof	Accidental
....	1	1	..	......	Caught in the machinery	Accidental; his own carelessness
...	1	1	..	......	Blast	Criminal carelessnes of fellow-employe.
...	3	3				

COUNTY.

1	....	1	..	......	Fall of roof	
....	1	1	..	....	Overcome by gas in the mine	Suffocated by gas
1	....	...	...	....	Fall of coal	
2	1	2				

COUNTY.

....	1	1	..	......	Fall of roof	Accidental; no one to blame

TABLE X—RECAPITULATION OF COAL MINE ACCIDENTS.

Number of non-fatal accidents	15
Number of fatal accidents	13
Total accidents	28
Number of single men fatally injured	4
Number of married men fatally injured	9
Total fatally injured	13
Number of wives made widows	9
Number of children made fatherless	18
How injured men were employed.	
Engineer	1
Operators	2
Drivers	2
Miners	23
Total	28

Causes of accidents and number injured.	*Fatal.*	*Non-fatal*	*Total.*
Careless handling of powder	...	1	1
Machinery	1	....	1
Blasts	1	1	2
Gas	1	1	2
Fall of coal	1	1	2
Windy shots	1	3	3
Mine cars	1	3	4
Fall of roof	7	5	13
Totals	13	15	28
Accidents by counties and number in each.			
Bates	3	8	11
Lafayette	1	1	2
Linn	1	.....	1
Macon	2	1	3
Putnam	1	3	4
Randolph	3	...	3
Ray	1	2	3
Vernon	1	....	1
Totals	13	15	28

LIST OF PROPRIETORS AND OPERATORS.

ADAIR COUNTY.

Proprietor.	Operator.	Postoffice address.
Inbody, Jas	W. Didemer	Kirksville
Madden, Jno. F	Jno. F. Madden	"
O. K. Coal Co	J. F. Straup	Novinger
Pennsylvania Coal Co	H. C. McCahn	Stahl City
Scott, D. C	D. C. Scott	Kirksville

AUDRAIN COUNTY.

Atkinson, J. D	J. D. Atkinson	Wooster
Davis, T. C	T. C. Davis	Mexico
Farber Coal Co	Farber Coal Co	Farber
Ferris, Turbin & Co	O. G. Detienne & Co	Laddonia
Lynch, Jas	J Davidson	"
McCowan, W. W	W. W. McCowan	Martinsburg
McGuire, Martha	Martha McGuire	"
Robertson Bros	Robertson Bros	Laddonia
Taylor Coal Co, W. F	W. F. Taylor Coal Co	Martinsburg
Vandalia Coal Co	Vandalia Coal Co	Vandalia
Vandalia Fire Brick works	Vandalia Fire Brick works	"

BARTON COUNTY.

Allen, F. L	F. L. Allen	Liberal
Bell, J. W	J. W. Bell	Boston
Betz, Jacob	Jacob Betz	Liberal
Boulware, S. G	John Prosser	"
Boulware Bros	John H Lavery	"
Clark, Wilson	Henry Becker	Lamar
Clark, Wilson	Becker & Dickey	"
Lanyon, S. H	Minerd Bros	Minden
Hanshaw, W. H	W. A. Brown	Iantha
Humphery Bros	C. Lape	Lamar
Joyce, A. H	Chas. Holmstrom	Boston
Mann, B. F	B. F. Mann	Lamar
Martin, J. A	J. A. Martin	"
Parry, Mrs. J. C	Mrs. J. C. Perry	"
Speer, M. M	M. M. Speer	"
Still, W. H. and J. A	W. A. and J. A. Still	Boston
Traverse, Jos	Jos. Traverse	Liberal
The Wear Coal Co	The Wear Coal Co	Pittsburg, Kas
Watson, S. G	Liberal Coal Co	Liberal
Whitesell, H. J	H. J. Whitesell	"
VanPelt, Dr	C. C. Daubin	Lamar

BATES COUNTY.

Proprietor.	Operator.	Postoffice address.
Abston, W. S	C. G. Demming	Worland
Anderson, J	J. Anderson	Foster
Bear Coal Co.	B. Bear	Worland
Black Diamond mine	C. W. Field	Amoret
Borrow Bros. Coal Co	Borrow Bros.	Rich Hill
Boyce, Ferguson & Massie	Sullivan & Miller	"
Bruce & Manville	Bruce & Manville	"
Broyton, R.	S. D. Rowland	Amoret
Dabney, E. C	E. C. Dabney	Foster
Doke & Drysdale	Sam'l Doke	"
Doolittle, Jno	L. D. Eastman	"
Davis, E. G	Wm. Rickey	"
Davis, E. G	W. H. Gayley	"
Eynon & Stephens	E. Eynon	Worland
Farrell, F. J. and Bros.	F. J. Farrell & Bros.	Foster
Flansburg & Son	Flansburg & Son	Amsterdam
Ford, J. A	J. A. Ford	Rockville
Hudson, S. G	Hudson & Co	Worland
Horton, C. E	W. R. Johnson & Co	Hume
Johnson, J.	J Johnson	Worland
Kansas Line Coal Co.	Kansas Line Coal Co.	Rich Hill
Kansas and Missouri L. & C. Co.	D. D. Peeler	Rockville
Lewis, O. H	Jno. Gerodo	Worland
Lewis, P. F	W. H. Mace	Foster
Manchester & Son, Thos	Thos. Manchester & Son	Hume
March, Jno. J	J. C. Griggs	Rich Hill
Martin, Gee & Ferguson	Martin, Gee & Ferguson	"
Peacock mine	A. Fisington	Worland
Pearson, Peter	Peter Pearson	Rich Hill
Raney & Washburn	Raney & Washburn	Worland
Rankin Bros	Rankin Bros	"
Rich Hill Coal and Mining Co	Rich Hill Coal & M. Co	Rich Hill
Robinson, H. P	H. P. Robinson	"
Russell, M. D	M. D. Russell	Foster
Skillman, A	A. Skillman	"
Walnut mine	Borin & Co	"
Western Coal and Mining Co	Wallace Bros	"
Western Mining Co	J. M. Tatley	Worland
Wise Coal Co., J. M	J. M. Wise Coal Co	Rich Hill

BOONE COUNTY.

Proprietor.	Operator.	Postoffice address.
Ballenger, John L	Speer Mitchell	Columbia
Blackfoot Coal Co.	Blackfoot Coal Co.	"
Carter, W. J	W. J. Carter	"
Columbia Coal Co.	Columbia Coal Co.	"
Davis, Isaac	Isaac Davis	Brown Station
Gordon, Scott	Scott Gordon	Columbia
Gossett, Jno. F	Jno. F. Gossett	Switzler Station
Rogers, Henry	Henry Rogers	Brown Station
Stidham, W. A	W. A. Stidham	Harrisburg
Stone, J. W	J. W. Stone	Perche
Sublett, Sam'l	Sam'l Sublett	Columbia
Zaring, N. B	N. B. Zaring	"

CALDWELL COUNTY.

Proprietor.	Operator.	Postoffice address.
Caldwell Coal Co	E. B. Hayden & Co.	Hamilton
Hamilton Coal Co.	Hamilton Coal Co.	"
Kingston Coal Co.	Kingston Coal Co	Kingston

CALLAWAY COUNTY.

Carbon Valley mine	J. W. Simmons	Fulton
Cassell, Wm	Wm. Cassell	"
Curd, Edwin	R. Cumberland	"
Curd, Edwin	Fritz Lambis	"
Curd, Edwin	Mahoney & Massey	"
Fulton F. B. & M. Co.	Fulton F. B. & Mining Co.	"
Harris, John	John Harris	"
Henderson, Jas	E. Allen	McCreedie
Maycock, Sam'l	Sam'l Maycock	Fulton
Marsenkoff, Jno	Jno. Marsenkoff.	"
Smith, James	James Smith	"
Weeks, Wm	Jno. A. Little	Hams Prairie

CARROLL COUNTY.

Black Crow Mining Co	Deardorff, Scott & Co.	Hale
Brooks, Henry	Henry Brooks	Carrollton
Christmas, Leander	Geo. Williams.	"
Farr, Ralph	Ralph Farr	Little Compton
Hughes. Wm	Wm. Hughes	"
Ogle, Wm. F.	W. F. Ogle	"
Reynolds, W. W.	W. W. Reynolds	"
Scott, W.	W. Scott	Carrollton
Whitehead, Jas	Jas. Whitehead	Little Compton

CEDAR COUNTY.

Daniels, Lee	Lee Daniels	Jerico
Connor, Jas. N.	Jas. N. Connor	"
Duncan, J. C.	J. C. Duncan	"
Estice. J. H	Rand Estice.	"
Poage, Gil.	Gil. Poage	"
Sehroeder, C. M.	C. M. Schroeder	El Dorado Springs.

CHARITON COUNTY.

Proprietor.	Operator.	Postoffice address.
Gratjohn, Louis	Sublett & Dooly	Dalton
Henderson, J. P.	J. P. Henderson	Salisbury
Huenten, John	John Huenten	Guthridge
Isle, R. W	R. W. Isle	Indian Grove
Isle, J. W	A. F. Isle	"
Kahler, V	V. Kahler	New Comer
Merchants, J. A	C. H. Owen	Brunswick
Peacock mine	McNamee & Henshaw	"
Salisbury Coal Co	Salisbury Coal Co	Salisbury
Simpson, J. W.	J. W. Simpson	Brunswick
Williams, Thos. O	Thos. O. Williams	"

COLE COUNTY.

Leach & Co	Leach & Co	Elston Station

CLAY COUNTY.

Missouri City Coal Co	Missouri City Coal Co	Missouri City

COOPER COUNTY.

Hazel Spring coal mine	Chas. Hazel	Boonville
Hazel, Chas	Chas. Hazel	"
Jenkin, H W	Martin Tucker	"
Missouri Valley Coal & M. Co	Missouri Valley C. & M. Co	"

DADE COUNTY.

Allen, Wm.	Thos. Allen	Sylvania
Dunham, Robt.	Rob't Dunham	"
Farmer, J. F	K. Goshorn	"
McGarvey mine	W. Johnson	"
McArthus mine	T. H. Gardner	"
McCombs mine	O. W. Ramsey	"
McCluey, Robert	Robert McCluey	"
Meyers, D. J	J. A. Clayton	"
Seatton, J. R	W. E. Sutton	"

GRUNDY COUNTY.

Grundy County Coal Co	Grundy County Coal Co	Trenton
Jaynes, N	N. Jaynes	Gault

HENRY COUNTY.

Proprietor.	Operator.	Postoffice address.
Barth, John	S. B. Price	Lucas
Beedy, J. C.	Wm. E. Hughes.	Windsor
Blair, John J.	D C Blanchard & Sons	Brownington
Blanchard, D. & Sons	D. C. Blanchard & Sons	"
Bydston, Chas	Bydston, Chas	East Union, Ohio
Braun Coal Co	Braun Coal Co.	Deepwater
Central Coal & Coke Co	Central Coal and Coke Co.	Kansas City
Co-operative Coal Co	Co-operative Coal Co	Lewis Station
Edwards & Minnish	Edwards & Minnish	Calhoun
England, Wm	Wm. England	Clinton
Gerhart, Theo.	Theo. Gerhart	Sparrow
Hancock Coal Co	Hancock Coal Co.	Clinton
Hines mine	J. W. Shook	Windsor
Hurst, J. W.	J. W. Hurst	Deepwater
Hurst & Mantel	J. Hurst	"
Hurst, John.	John Hurst	"
McFadden, H. B.	H. B. McFadden	"
McCleod mine	Chas. Harper	Clinton
Mann, J. D	J. W Martin	Montrose
Miller, W J	L. W. Beahman	Windsor
Mundy, B. F	B. F. Mundy	Calhoun
North Station mine.	Morris & Bogard	Clinton
Pigg Coal Co., D. B	D. B Pigg Coal Co.	Lewis Station
Reise, Wm. & Son	Wm. Reise & Son	Deepwater
Rusk, Wm	Wm. Rusk	"
Standard Coal Co	A. Newbill	"
Stephens, Henry	Henry Stephens	"
Stockton, J. B	Stockton Bros	Clinton
Tebo Coal Co.	Tebo Coal Co	Lewis Station
Terrill, R.	Co-operative Coal Co	Browington
Thompson, R. L. & Co	R. L. Thompson & Co.	"
Walsh, Wm.	Henry Allen	Lucas
Victor Coal mine	J. W. Kenny	Montrose

HOWARD COUNTY.

Fayette Mining Co	Fayette Mining Co.	Fayette
Russell Coal Co.	Russell Coal Co	Higbee, Randolph co
Lockridge, D M	Joseph Howard	Fayette

JACKSON COUNTY.

Brush Creek Coal Co	Brush Creek Coal Co.	Kansas City

JOHNSON COUNTY.

Boyd, P H	H. H. Penrod	Montserrat
Bristle Ridge Coal Co.	Joseph Murley	"
Fisher, R. O	Grant Rumley	Dunksburg
Nnob Noster Coal Co.	Knob Noster Coal Co.	Knob Noster
Murray, J. M	J. M. Murray	Warrensburg
Meily, M B	M. B. Meily.	"
Tanner, Henry	Henry Tanner	"
Wood, B. F	B. F. Wood,	"

LAFAYETTE COUNTY.

Proprietor.	Operator.	Postoffice address.
Armstrong, Jos	St. Clair Bros	Greenton
Beatty & Taylor	Beatty & Taylor	Higginsville
Bell & Greer	W. H. Greer	Lexington
Bonanza Coal Co	Bonanza Coal Co	Higginsville
Brackman, H. W	Lynch & DeJackson	Sweet Springs
Carter & Son	Carter & Son	Wellington
Clark & Co	Butler, Talbott & Altchaffel	Lexington
Colman, Frank	Frank Colman	Higginsville
Consolidated Farmer's Coal Co	Farmers' Con. Coal Co	"
Corder Coal mine	Corder Coal & Coke Co	Corder
Daisey Hill Coal Co	W. H. Bell	"
Dover mines	Dover Coal Co	Lexington
Duncan, Chas. E	Chas. E. Duncan	Higginsville
Farmers' Coal & M. Co	Beatty, Taylor & Campbell	"
Fox, N. F	Robert Fox	Dover
Gaffin, Otto	Otto Gaffin	Lexington
Haygood Coal mine	Gunn & Bros	Higginsville
Hays, Alice Belle	Frank W. Hays	Lexington
Hughes, H. C	H. C. Hughes & Son	Higginsville
Holwell, Michael	John Howell	Lexington
Kish, Joseph	Joseph Kish	"
Krentz, Fred, Jr	Wm. Davis	Wellington
Kresse, A. F	A. F Kresse	Concordia
Hoeffer, M	F. Thomas	Higginsville
Lexington Coal & Mining Co	Lexington Coal & M. Co	St. L. & Lexington
Macey, Henry	Henry Macey	Kansas City
McGrew, J. C	J C McGrew	Lexington
Missouri River Coal & Mining Co	Mo. River Coal & M. Co	"
Morgan, W. P	W. P Morgan	Corder
Morrison Bros	Morrison Bros	Lexington
O'Malley, Andrew	Andrew O'Malley	"
O'Malley, John	F. Green	Higginsville
O'Neal & Bringer	O'Neal & Bringer	Wellington
Riely & Keist	Riely & Keist	Lexington
Risewell & Bro., James	James Risewell & Bro	"
Salt Fork Coal & Mining Co	Salt Fork Coal & M Co	Corder
Seawell, J. M. & Co	J. M. Seawell & Co	Kansas City
Steinman coal mine	Henry Bartels	Concordia
Strattman, Henry	Kuehne & Weber	Alma
Summers, M. W	M. W. Summers	"
The Mathews Coal Co	The Mathews Coal Co	Mayview
The Southwestern Coal Co	The S. W. Coal & M. Co	Kansas City
Vallentine, John	John Vallentine	Wellington
Walnut Grove mine	J P. Hendrick	Concordia
Waskoski, M	M. Waskoski	Higginsville
Water Street mine	Thomas Walton	Lexington
Waverly Coal & Mining Co	Waverly Coal & M. Co	Waverly
Wellington Coal Co	Wellington Coal & M. Co	Wellington

LINN COUNTY.

Bottomly, J C	J. C. Bottomly	Brookfield
Clark, George	George Clark	"
Landrith & Son	Landrith & Son	Marceline
Marceline Coal Co	Marceline Coal Co	"
Schaeffer, Bernard	Bernard Schaeffer	Brookfield
The Brookfield Coal Co	The Brookfield Coal Co	"

LIVINGSTON COUNTY.

Proprietor.	Operator.	Postoffice address.
Eagle Coal mine..................	W. A. Cox...............	Chillicothe.........

MACON COUNTY.

Baldwin Bros....................	Gunter & Yates...........	New Cambria......
Bevier Black Diamond Coal Co...	Bevier Black Diamond C. Co	Bevier............
Freele, Wm., mine	John Harold..............	Macon City........
James & Son.......	James & Son..............	Bevier. ....
Kansas & Texas Coal Co....... ..	Kansas & Texas Coal Co...	St. Louis ....
" "	Geo. Ferris	Ardmore...........
Little Pittsburg Coal Co..........	Little Pittsburg Coal Co...	Lingo.............
Loomis Coal Co..................	R. G. Rombauer, receiver.	Bevier.............
Newlin coal mine..	Granaway & Lewis........	" ....
Richmond, J. G......	Campbell & Gorham.......	College Mound.....
Rowland, P F....................	P. F. Rowland............	Macon City........
Terrell, R. S....................	R. S. Terrell	" ....
Watson Coal & Mining Co........	Watson Coal & Mining Co..	Bevier..............

MONTGOMERY COUNTY.

Noel, Buford......................	Buford Noel...............	Wellsville..........
Vandalia Coal Co..................	Vandalia Coal Co..........	" ....

NODAWAY COUNTY.

Bird, Corydon.....................	Corydon Bird	Quitman...........
Potts, W. W......................	Thos. Howard.............	Burlington junction

PUTNAM COUNTY.

Andrews, Jefferson...............	Jefferson Andrews.........	Unionville.........
Adkins, Wm.	Skinner & Adkins..........	Howland...........
Barnhardt, A J	A. J. 'Barnhardt...........	Mapleton..........
Blackbird Coal Co................	Wm. Love................	Blackbird..........
Emporia Coal & Coke Co..........	Geo. W. Evans, Supt	Unionville.........
Henkle, R. F....................	N. S. Talcot.............	Des Moines, Iowa..
Jones, W. R.....................	Moore & Smith	Unionville.........
Mendota Coal & Mining Co.	Mendota Coal & Mining Co.	Mendota.. ....
Veach, Rosey....................	P. H. Veach....	Mapleton ....

RALLS COUNTY.

Ralls County Coal Co............	Ralls County Coal Co......	Perry..............

RANDOLPH COUNTY.

Proprietor.	Operator.	Postoffice address.
Bradley, D. T	D. T. Bradley	Moberly
Breckinridge, John	John Breckinridge	Huntsville
Beeman, W. M.	W. M. Beeman	Moberly
Brown & Welsby.	Brown & Welsby	Renick
Caffery-Baker Coal Co	Caffery-Baker Coal Co	Huntsville
Dean, Harry	Harry Dean	Jacksonville
Deitenne, A. D	A. D Deitenne	Huntsville
Eagle Coal Co	Eagle Coal Co.	Moberly
Edwards, Emanuel	Emanuel Edwards	Huntsville
Elliott Coal Co	Elliott Coal Co.	Elliott
Fray, W. H	R. G. & O. S. Fray	Yates
Hammett, J. W	Pryor & Picket	Huntsville
Higbee Coal & Mining Co.	Wm. Walton	Higbee
Interstate Coal & Mining Co	" "	"
McCann, Hugh	D. Skinner	Moberly
Millburn, Joseph	Millburn Bros	Thomas Hill.
Mitchell & Sanderson	Mitchell & Sanderson	Huntsville
Morris, John L	John L. Morris	Renick
Robinson, Jos	Jos. Robinson	Huntsville
Rutherford, W. F	W. H McKierman	Moberly
Stewart, J. N.	J. N. Stewart	Huntsville
Strieff, M	M. Strieff	"
Vaughn, Wm	Wm. Vaughn	"
Ward, Harry	Harry Ward	Moberly
Williams, J. B	L. B. Williams	"

RAY COUNTY.

Bissel Coal Co	Bissell Coal Co	Orrick
Black Diamond Coal Co	D. C. Izett	Richmond
Bryan & Co	Bryan & Co.	Lakeview
Bryan, J. H	James Collins	"
Hayson & Douglas	Hayson & Douglas	Richmond
Evans, L. D	Jos. Loeven	Hardin
Harrison, J. W	E. Harrison	Richmond
Hartwell, Arnold & Co	Nelson & Jacobs	Lakeview
Hubbell & Fisher Coal Co	Hubbell & Fisher Coal Co.	Richmond
Hubbell, Hayett & Hubbell	W. P. Hubbell, adm'r	"
Huston, Jos	Jos. Huston	Lakeview
Kansas & Texas Coal Co	Kansas & Texas Coal Co.	St. Louis & Flem'g
King, R. A	R. A. King	Hardin
Lockwood & Lusk	Lockwood & Lusk	Kansas City
Milligan mine	Dickson & Stewart	Richmond
Mosby Coal Co.	Mosby Coal Co.	Camden
Mosby & Dougherty	Rooney Bros	Richmond
Murray, Jesse	Thos. Rooney	"
Pence & Anderson	Pence & Anderson	"
Pence & Calnen	Pence & Calnen	"
Pickering Coal Co.	Pickering Coal Co.	"
Randall estate	Patrick Walsh	"
Rankin, A. F	A. F. Rankin	"
Richmond & Camden Coal Co	Richmond & Camden C. Co	"
Sater, H. W	H. W. Sater & Son	Georgeville
Starr, Alex	Wm. Phillips	Hardin
Williams Coal Co.	Williams Coal Co	Swanwick
Wilson mine No. 8	Mrs. Mary Wilson	Richmond

ST. CLAIR COUNTY.

Proprietor.	Operator.	Postoffice address.
Allison, R. W	Scott Poe	Taberville
Barnett, Joseph	Thompson & Barnett	Iuka Springs
Browning, W G	Wm. Dowers.	Lowry City
Collins, John C	Collins & Stanley	Osceola
Douthat & Vannice	Douthat & Vannice	Vista
Johnson & Co	Wm. Watkins	Osceola
Knierim, Rev. John	Wm. Howard	Deepwater
Gore mine	Frank Richmond	Johnson City
Seymore. W. A	Gibson & Wilcox	Osceola

SALINE COUNTY.

Blackburn Coal Co	Blackburn Coal Co	Blackburn
Marmaduke, V.	Henry Bowman	Sweet Springs
Taylor, Henry	Jas. McQuillan	Mt. Leonard
Terrell, H. C	Brathy & Parrish	Elmwood
Whitaker, M	M. Whitaker	Miami

SCHUYLER COUNTY.

Golston, Ira	Ira Golston	Queen City
Hargrave, M. A.	M. A. Hargrave	Zola
Raven Coal Mining Co	Jas B Badger	"

SULLIVAN COUNTY.

Locust Valley Coal Co	Henry Roberts	Milan

VERNON COUNTY.

Allen, L	E. Green	Wise
Angel, L. W	D. K. Perkins	Moundville
Arthur Coal & Mining Co	Arthur Coal Mining Co	Arthur
Bedford Coal & Mining Co	Henry & Brown	Rich Hill
Burks, Margaret	Jefferson Flake	Walker
Burton, W. C.	J. C. Lucas	Bronaugh
Central Coal & Coke Co	Central Coal & Coke Co	Panama
Crawford, C. B	C. B. Crawford	Walker
Dodson, J. R	J. R. Dodson	"
Ewing, L. B	Ewing Bros	"
Gordon, Allen	J. F. Blair	"
Ingraham, R	R. Ingraham	Arthur
Larkin Coal Co	Larkin Coal Co	Bronaugh
Lightner, A. D	A. D. Lightner	Milo
Mann, Morris	Hammett & Overmeyer	Walker
Mosher, M. E	Thos. Sing	Schell City
Prewitt, W. H	W. H. Prewitt	Walker
Reed, P. H. W	P. H. W. Reed	Bronaugh
Rich Hill Coal & Mining Co	Rich Hill Coal & Mining Co.	Rich Hill
Shaw, J. W	W. D. Garton	Moundville
Stoll, John	L. Mell	Bronaugh
Vernon Coal & Mining Co	Vernon Coal & Mining Co.	Rich Hill
Webb, J. W	J. W. Webb	Bronaugh

GLOSSARY

OF MINING TERMS USED IN MISSOURI.

After-damp—The mixture of gases remaining in a mine after an explosion of fire-damp.

Air—The current of atmospheric air circulating through and ventilating the workings of a mine.

Air-shaft—A shaft used expressly for ventilation.

Air-stack—A ventilating chimney.

Air-way—Any passage in a mine through which air for ventilating purposes is passed.

Anemometer—An instrument used for measuring the volocity of a ventilating current.

Bearing in—Undermining.

Black damp—Carbonic acid gas$=Co_2$. It will not support combustion or life.

Blower—A strong discharge of gas from a fissure.

Blown-out shot—A shot that has blown out the tamping without bringing down the coal.

Bonnet—A shield or covering over a cage to protect it and the miners from anything falling down the shaft.

Bottom—The landing at the bottom of the shaft or slope; the floor, bottom rock or stratum underlying a coal seam.

Brattice—A division or partition in a shaft, slope, heading, gangway or other underground working places for providing ventilation.

Brattice-cloth—A heavy cloth or canvas, often covered with water-proof material, used in the construction of doors and brattices instead of plank.

Bridle-chains—Short chains by which the rope is attached to the cage.

Buntons—Timbers placed horizontally across a shaft to carry the cage guides, also to strengthen the shaft timbers.

Butty—A partner in a contract for driving or mining; comrade, crony.

Cage—A platform on which the mine cars are raised and lowered in mine.

Car-mine-car—Any car used for the conveyance of coal or mineral in a mine.

Cap—A piece of plank used on the top of a prop.

Cartridge—Paper or water-proof cylindrical cases filled with gun-powder, forming the charge for blasting.

Catches, latches or keeps—Catches or rests, to hold the cage when it is brought to rest at the top, bottom or any intermediate landing; also, stops fitted on a cage to prevent cars from running off.

Cave-in—A caving in of the surface over mine workings.

C. H.$_4$—The chemical symbol for fire-damp.

Charge—The amount of powder or other explosive used in one blast, or shot.

Choke-damp—(See black damp).

Chute (also spelled **Shute**)—Any passage through which the coal descends by gravity.

Clanney lamp—A safety-lamp invented by Dr. Clanney.

Clod—A layer of soft shale or slate, forming a very bad roof over a seam of coal.

Coal measures—The carboniferous formation.

Colliery—The whole plant, including the mine and all adjuncts.

Column pipe—The pipe through which the water is conveyed from the mine pumps to the surface.

Creep, or squeeze—The gradual upheaval of the floor of a mine, due to the weight of the overlying strata.

Crib—A structure composed of horizontal frames of timber laid upon one another, or a frame-work built like a log cabin.

Cribbing—Timbering a shaft with crib-work, commonly extending from surface to the bottom.

Cropping out—Coming to the surface; outcropping.

Cross-cut—A small passage-way driven at right angles to the main heading or entry to connect it with a parallel gangway or air-course.

Davy lamp—A safety-lamp invented by Sir Humphrey Davy.

Dead-work—Work which at the time it is done and of itself produces little or no profit.

Digging—Mining operations in coal or other mines.

Dip- To slope downward from the surface; the inclination of a stratum of a coal seam.

Ditch—The drainage gutter.

Doors—Wooden doors fixed in underground roads to prevent the ventilating current from taking a short cut to the upcast air way.

Downcast—The opening through which the fresh air is drawn or forced into the mine —the in-take.

Drift—A water-level gangway or entry driven into the seam from the surface.

Drum—The revolving cylinder around which the winding rope is coiled.

Dump—(1) A pile or heap of ore, coal, slate or rock. (2) The tipple by which the cars are dumped. (3) To unload a car by tipping it up.

Entry—Main hauling roads or gangways.

Face, or working face—The place at which the coal is actually being worked away, either in a breast or heading.

Fall—(1) A mass of roof or side which has fallen in any part of a mine. (2) To blast or wedge down coal.

Fan—Centrifugal mechanical ventilator.

Fault—A fracture or disturbance of the stratum breaking the continuity of the seam.

Fire—A word shouted by miners to warn one another when a shot is fired.

Fire-boss—A man whose duty it is to examine the workings for accumulation of explosive gas, etc.

Fire-damp—The explosive gas of coal mines —light carburreted hydrogen; the chemical formula $C\,H_4$.

Furnace—A large coal fire at or near the bottom of an upcast shaft, for producing a current of air for ventilating the mine.

Gas—Fire-damp.

Goaf or gob—(1) A space from which the coal has been worked away and the space more or less filled up. (2) The refuse or waste left in the mine.

Gob-fire—Spontaneous combustion underground.

Guides—Vertical timbers fastened to the buttons to steady and guide the cage.

Head-gear—The pulley frame erected over a shaft.

Head-house—When head-frame is housed in, the structure is known by this name.

Heading—A gangway or entry.

Horseback—Natural channels cut or washed away by water, in a coal seam, and filled up with shale and sandstone. Sometimes a bank or ridge of foreign matter in a coal seam.

Incline—A slope, any inclined plane, whether above or below the surface.

Indicator—Any instrument or device for indicating the position of the cage in the shaft.

In-take—The passage through which the fresh air is drawn or forced in a mine.

Keeps—See Catches.

Lagging—Small, round timber, slabs or planks, driven in behind the legs and over the collar to prevent pieces of the roof from falling through

Landing—The top or bottom of a slope, shaft or inclined plane.

Latches—A synonym of switch, applied to the split-rail and hinged switches.

Long-wall—A system of working a seam of coal in which the whole of the seam is taken out, leaving no pillars, except sometimes a pillar to support the bottom of shaft.

Loader—One who fills the mine cars at the working place.

Manager—An official who has the daily control and supervision of a mine, both above and below ground.

Manway—A small passage used as a traveling way for the miner.

Motive column—The length of column of air in the downcast shaft which would be equal in weight to the difference in weight of the air in downcast and upcast shaft. The power obtained by furnace ventilation is measured by the difference of the weight of the air in the two shafts.

Mouth—The surface end of a shaft or drift.

Narrow work—Headings, air-courses, gangways, entries, etc.

Natural ventilation—Ventilating a mine without furnace or other artificial means.

Needle—A sharp-pointed metal rod, placed in a bore-hole during the tamping of the charge, to leave on its withdrawal an opening through which the charge can be fired.

Nut coal—Coal that passes through an inch or an inch and one-half screen, and over a half-inch screen.

Out-crop—That portion of a vein, bed or any stratum appearing at the surface or occurring immediately beneath the soil.

Output—The total product of a mine.

Overcast—A passage through which the ventilating current is conveyed over an entry or air-course.

Parting—Any thin or inter-stratified bed of earthy material.

Pillar—A solid block of coal left to support the roof.

Pillar and room—A system of working coal by which solid blocks of coal are left on either side of rooms, entries, etc., to support the roof until the rooms are driven up, after which they are drawn out.

Pitch—Dip or rise of a seam.

Plan—The system on which mine is worked, as "long-wall," "pillar and room," etc.

Propping—The timbering of a mine.

Prospecting—Examining a tract of country in search of minerals.

Pulley—The wheel over which a winding rope passes at the top of the head-gear.

Regulator—A frame with a slide door to regulate the amount of air passing into any part of the workings.

Return air—Air that has passed through the workings.

Rib—The side of a pillar.

Roof—The rock lying above a coal bed or ore vein.

LETTER OF TRANSMITTAL.

STATE OF MISSOURI,
OFFICE OF STATE MINE INSPECTOR.
CITY OF JEFFERSON, Oct. 15, 1895.

HON. LEE MERIWETHER, Labor Commissioner, Jefferson City, Mo.:

DEAR SIR—Please find herewith the Ninth annual report, on all other than coal mines, of this State, as required by the Revised Statutes of 1889, section 7072.

It pleases me to be able to show in this report an increase in the number of mines, in the tonnage of both lead and zinc, in the average price of zinc ore, in the number of men employed, and also in the grand money total as compared with the preceding year. The price of lead being the only exception to the general increase.

Very respectfully,

FRANCIS A. LAGRAVE,
State Mine Inspector.

REPORT.

It affords me pleasure in presenting this, the ninth annual report, on all mines other than coal mines, to point to a very material increase in the production of both lead and zinc ores as compared with the year 1894.

The tonnage production of lead increased 9615 tons, and this, in spite of a very marked decrease in price ($7.42 per ton.)

This fall in the price has caused the money total for this product to be $97,168 less than that of last year. It has also been the cause of several large producers shutting down their mines, as they say that they cannot produce lead at the present prices and prefer to close their mines rather than exhaust them without profit to themselves. This speaks all the better for the production of the plants that have remained in operation.

The tonnage of zinc ores was increased 12,144 tons, and I am glad to state that the case of this product, with reference to price, is the reverse of that of its sister-metal, lead, as its price increased $1.86 per ton.

This increased price was experienced toward the latter end of our fiscal year, and has caused a marked increase in the development of the mines. Many of those shut down on account of low prices have been re-opened and are now producing ore, and many new mines have also been opened lately and have become good producers.

In Jasper county many new discoveries have been made lately, those east and west of Joplin being probable the most noted of the recently opened mines. However, some of the new mines north promise very well, and around Webb City and Carterville are also found many new prospects that ought to develop into good paying mines. There are several other places in the county where good zinc and lead ores have been found recently, and only require development to turn them into good producers. In all these places new shafts are being sunk and the churn drill used to find the ore preparatory to sinking more. In this manner a large area in Jasper county is being developed, and if

I may judge from the amount of drilling and the large number of shafts being sunk in what may be termed new territory, the probability of an increased production for several years to come turns to an assured fact. There were also many new plants for dressing ore put up this year, many of which have improvements connected with them that are very much superior to the old methods in general use in the district. Considering the low prices of ore and the great financial depression that existed throughout the whole of last year, this county, I think, has done remarkably well, in increasing her tonnage of zinc ore over 13 cent and lead tonage over 18 per cent, and making an increased value of these products over last year of more than 8 per cent.

Another section of this district which has shown marked increase in her production is that portion lying around Aurora, in Lawrence county. Here, as in Jasper county, many new shafts are being sunk, which promise a fine production of ore for many years to come. The developments here are well up to the average in other parts of the district, and the future of the camp looks bright as a producer. It only requires some capital and the energy of some of our western miners to make it a booming camp.

The amount of money realized by the zinc miners this year is $369,755.04 in excess of that of last year.

The grand total of money from lead and zinc is $3,560,066.24, which is $272,587.32 greater than last year's total.

We also find 292 more men engaged in producing these metals than in the preceding year.

In Southeast Missouri, and especially in St. Francois county, where is found the enormous deposits of disseminated lead ores, gigantic strides have been made in late years in its development, and in the application of machinery to reduce the cost of mining and milling these very large bodies of low-grade lead ores. How well it has been done we can judge by the production of some of the mines, the largest (St. Joseph Lead Co.) producing over 20,000 tons of dressed ore ready for the furnace, this year.

Very large and costly machinery must be used here on account of the depth at which they are mining, (the deepest is that done by the Doe Run Lead Co., as its shaft at Flat river is 450 feet deep) and the great amount of water encountered necessarily requiring the very best pumps. The large amount of machinery required for dressing the ore forces them to get the best engines, boilers, etc. All this adds materially to the cost of producing the ore, most of which is very low grade and intimately mixed with hard limestone. Hence, every economical appliance of machinery is being used, so as to bring the cost of production below the present low prices of lead.

In this connection I give below a short description of one of these mines and its mill, accompanied by explanatory cuts, with the hope that some of the improved methods found to work so satisfactorily here, may be adopted by other mill men and thereby not only save more ore, but do so more economically than they are now doing.

For this purpose I selected the "Central Lead Co.'s" plant, situated near Flat river, in St. Francois county, on account of its being the last plant erected in that district, and hence would naturally have the latest improvements.

The ore body of the Central Lead Co.'s mine is situated at a depth of 370 feet, and is from 6 to 35 feet in thickness. The mining is done with sypher drills, driven by compressed air. Only one shaft has been sunk, but the cores obtained by prospecting with diamond drills indicate an ore body extending some 3000 feet in length and at a uniform depth, making the mining economical.

Considerable water is encountered, the present flow in the mine being about 300 gallons per minute; which, however, is easily handled by a Worthington compound condensing pump of the pressure pattern, set over the "sump," near the bottom of the shaft, into which sump all the water of the mine drains. The steam cylinders are 12″ by 20″, and the water cylinder 7¾″, with a 15″ stroke. Great care was exercised in setting the pump and in obtaining a free discharge with easy curves. Its steam-pipes are carefully covered to prevent loss from condensation, and a separator is placed near the pump, while steam and vacuum gauges maintain proper control.

The mine cars, which are made in the machine-shops of the company, are light, cheap, durable and admirably adapted for the purpose. They are built of steel sheets joined with angle iron, and are so constructed that when put on the "cradle" the end and sides open automatically and empty the load.

The shaft is provided with cage-way and ladders from top to bottom. The cage is built of steel and Norway iron and is provided with strong safety-catches. The catch is of the cam pattern, placed on a two-inch steel shaft and held together by one-inch Norway iron plates. The center of the bottom of the cage is arranged to drop about three inches when the cage lifted off the landing, thus locking the car automatically and preventing any danger from the car slipping while hoisting and lowering. The landing timbers at the top are arranged on an arc, so that when they fall into place they are supported directly on the gallows frame and not on the legs. A counter weight, running in guides, is connected directly with the drum of the hoist, and so arranged as to balance the weight of the cage and empty car. This not only relieves the engines, but prevents accidents from over-winding of the cable, as, when the counter-weight reaches the bottom so much additional work is thrown on the hoist that it stops under any ordinary head of steam. Steam is turned on in lowering to start the cage, and in hoisting steam is shut off some 50 feet before reaching the top, the acquired velocity carrying the cage to the top. This makes safe hoisting, for the reason that the velocity of the cage is decreasing when nearing the top and bottom of shaft.

The gallows frame is built of white oak. The sill timbers are 12"x12", bolted to masonry foundations, and the uprights are 10"x10". The height is 60 feet. There are 6 perpendicular timbers at the shaft, and 4 set at angles from the top; 2 leading to the sides, and 2 toward the hoist. The whole is strongly braced, and bolted with over 800 bolts; no pin joints being used. (See cut No. 1.)

The cars are landed about 35 feet above the ground and dumped by means of a cradle on an inclined "grizzley," the fine material passing directly through the "grizzley" into a mill-car, while the coarser material slides into the crushers, of which there are three, so arranged that one may be stopped without interfering with the others.

From the crushers, the broken ore falls into the mill-car. No attempt has been made to determine the capacity of the crushers, owing to the difficulty of ascertaining the quantity of fine material which passes through the "grizzlies," but 10 tons per hour usually pass through each crusher and "grizzley," and with new jaws and toggle-plates on crusher, special run of 12 tons in 22 minutes has been made. By the arrangement of grizzlies and crushers, but 3 men are required on top to handle 200 tons in 10 hours; that is to land, crush and deposit the ore in mill-cars, one man landing the cars and two feeding. (See cut No. 1.)

The engine-house adjoins the gallows-frame, and is covered by a truss roof, so that there are no posts in the way. The equipment consists of Lidgerwood reversible friction hoist, two Norwalk air compressors and a 50-horse power engine for crushers.

The boiler-house adjoins the engine-house, and contains four 50-horse power 6-inch flue boilers, Hoppe's live-steam purifier and Hoppe's open heater.

In a separate building near the shaft is the dry and changing house, the only one of its kind that I know of in the State. The use to which this building is put is unique, and the purpose very commendable, being solely for the comfort and convenience of employees.

The dimensions are 71½ feet by 18½ feet, and it contains a bathing pool 16 by 8 feet, and 6½ feet deep; the water being heated by steam and continually renewed from the pumps. On the sides of the interior are capacious closets, in which the miners keep their working clothes when not in use, each having his individual closet and key. The whole building is heated by steam coil-pipes used by the miners for drying their wet clothes. The company furnishes the building but requires the men to keep it clean, there being no other rules or regulations for its use. The constant use of the bath and building by all the men shows how it is appreciated, and it certainly is an outlay for the health and comfort of the men, well worthy of imitation by all companies engaged in mining. (See cut No. 3.)

The machine shop is situated near the mine, and is equipped with a Cincinnati Universal milling machine, a 24″ by 14 Lodge & Shipley lathe, a 10x16 Fay & Scott lathe, an 18″ Smith & Silk shaper, a 20″ Lodge & Davis drill press, Universal tool-grinder, pipe-cutter, punch, shears, etc., and a full line of small tools. This equipment enables repairs to be made without delay, and saves the expense of shutting down to send to the city for them. Many of the machines and repair parts are made here cheaper than they can be bought, with the exception of the castings, trucks, pulleys, etc. The cars, jigs, round tables, centrifugal pumps, tripods, columns and cages are all made here, while repair parts for all machines are constantly being made and kept on hand.

Near the machine shop are situtated the saw-mill and pattern-makers' shop. The pattern shop is fitted with a wood lathe for preparing patterns for castings required, while the oak timber on the company's land furnishes the necessary lumber.

The site of the mill is an excellent one, being on a hill-side, and adjacent to the water supply. The large tonage of low grade ore they have here, and the immense quantity of water required for its concentration, make small economies in the handling of each ton aggregate a large amount in a year, as 9000 tons of water pass through this mill in 24 hours. The mill is 1500 feet distant from the shaft, a site having been obtained on the side of a hill above Flat river, having a slope of about 20 feet and a fall of 70 feet to the river. It is built in terraces on the solid rock, so that the material to be concentrated passes by gravity through the successive operations without any expense of elevating or handling. The bottom of the mill is 30 feet above the river, and below the mill is an area sufficient in extent for the wastage of tailings for many years. A canal, on which the mill-pump is located, taps the river above the mill, the power for the pump being conducted from the mill.

The ore is brought from the mine in cars running on a standard gauge track. These cars hold about 10 tons, and have an ingenious bottom dump that can be opened or closed easily; the interior of the cars are inclined so that the material is discharged without attention. These cars are in reality storage bins on wheels; and for this work are the cheapest kind of bins that could be built. The track is level and the cars are easily hauled by two horses. The cars are run into the top of the mill where the ore is discharged to a roller feeder, which supplies a pair of belt roll 30″×16″. From the rolls the ore passes to a series of punched screen trommels of 12 m. m. 6 m. m. and 3 m. m. the overflow going to two hydraulic seperators and a two compartment spitzkasten, the overflow of this being clear enough to be used as feed water for the coarse jigs.

The mill is double and contains two sets of the above described rolls and sizing machinery. The material that passes over the 12 m. m. screens goes to 4 jigs, the middlings from which are crushed in a pair of rolls and returned to the trammels. The material from the 12 m. m. to 6 m. m. trammels goes to 9 jigs, the middlings being returned to the fine rolls and trammels. The material from the 6 m. m. to 3 m. m. trammels goes to 9 jigs, and the middlings also to the fine rolls. The material from the first hydraulic classifier goes to 8 jigs, and from the second classifier to 8 other jigs. From the first spitzkasten the material goes to 2 round tables, and from the second box to 2 other round tables. The crushed middlings are returned by centrifugal pumps. The jigs make hutch and side-gate concentrates, and all the concentrates are led into 2 troughs traversing the center of the mill, which discharge the concentrates into hand budles at the foot of the mill, where they are inspected and weighed out.

The only elevating is of the middlings, and the only hand labor applied during the whole process is in weighing. The machines are set an solid rock independent of each other, and the shafting is carried over-head on bents set on the solid rock. The building is light and unconnected with any machinery, serving only as a covering. The power is supplied by two 80-horse power flue boilers, and an 18×36 Reynolds' Corliss engine, with Wheeler condenser. (See cut No. 4.)

The works are connected with the M. R. & B. T. railway by about 1¼ mile of standard gauge track. They are also erecting an extensive smelting plant under the direction of Mr. J. T. Monell, metallurgist.

This company pays its employes the highest ruling wages in the district, and have no store connected with the mine in any way. The corporation is organized under the State laws of Missouri, and its stock principally held in St. Louis. The superintendent, Arthur Thacher, a graduate of Columbia college, N. Y., is an engineer of recognized ability. The assistant superintendent, R. D. O. Johnson, E. M., Washington University, who is in immediate charge of mines and mill, designed many features of the mill and plant, among which are many original improvements. The draughtsman, Chas. E. Schwartz, is also a mining engineer of undoubted ability. The good results obtained at this plant are certainly convincing proof of the effectiveness of the new and improved methods employed, and reflect credit on its management.

This short discription, and the cuts are given, as before stated, in the hope that they may be of benefit to those interested in Missouri mines, and stimulate a further search for economical and correct methods of mining and milling.

IRON ORE.

The rapid decline since 1890, of our iron ore production is the most unpleasant feature of our work.

With the knowledge that in nearly every county of the State south of the Missouri river, iron ore has been found, and that in many of these counties large bodies of ore have been developed by tests and actual workings. Yet, our best efforts to show a reasonable product from such abundance of material, has been most discouraging in its results.

Iron ore mining has been confined almost exclusively to Crawford county during the year. The iron ore dumps of the county are estimated to contain 80,000 tons, of which amount the number of tons mined during the year could not be ascertained with certainty.

The Meramec Iron Mining Co., operating the Cherry Valley ore banks, did some mining, but aside from the information that the company shipped 2260 tons of ore during the year, all other data was based upon estimate.

The following table will show the rapid decline in the ore production of the State from 1890 to 1895 inclusive:

For year	1890	product amounted to	232,835	tons.
"	1891	" "	138,356	"
"	1892	" "	126,521	"
"	1893	" "	86,983	"
"	1894	" estimated "	42,000	"
"	1895	" " "	30,000	"

There are serious reasons existing for this decline in our iron ore production, I say serious because the difficulties to be overcome in a revival of this industry are of that nature. The chief difficulty with which our mine operators have to contend is that all important matter of transportation. Unfortunately, all of the mines of the State so far developed are too distant from water transportation. The rates of freight by railroad, while doubtless as low as can be profitably furnished by them, yet they are too excessive to permit competition with the more favored localities possessing water transportation.

It should be remembered that the excellent iron ore of the far away Mediterranean is handled as ballast across the ocean and delivered thus cheaply to our Atlantic seaboard cities. Then turning to our own country and section of the country we find the enormous Lake Superior beds of ore. Here the metal is handled not only with such ease and wonderful economy, but favored by a water transportation covering so vast a scope of our country that the result of this enterprise in this single section has revolutionized the manufacture of iron in several of our largest iron-producing states. Until we are able to meet this class of competition there is not much prospect for a revival of the iron industry in the State.

TABLE I.

This table is a summary of the output, plant, employes, etc., of all lead and zinc mines in the State, showing a comparison with previous year with increase or decrease as the results have developed.

The table further shows a decrease of ore in the number of counties producing ores; an increase of 77 shafts; an increase of 9615 tons of lead, and 12,144 tons of zinc, and an increase in the total value of both metals of $272,588.

The decrease in the average value of lead per ton was $7.42, and the increase in the average price per ton of zinc ore has been $1.86.

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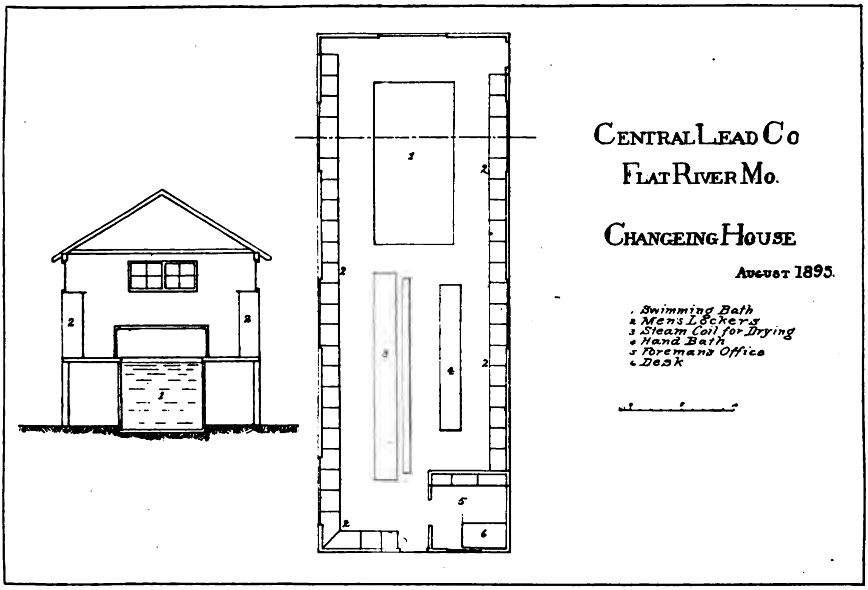
CENTRAL LEAD CO
FLAT RIVER MO.
CHANGEING HOUSE
AUGUST 1895.
1 Swimming Bath
2 Men's Lockers
3 Steam Coil for Drying
4 Hand Bath
5 Foreman's Office
6 Desk
1
2
3
4
5
6

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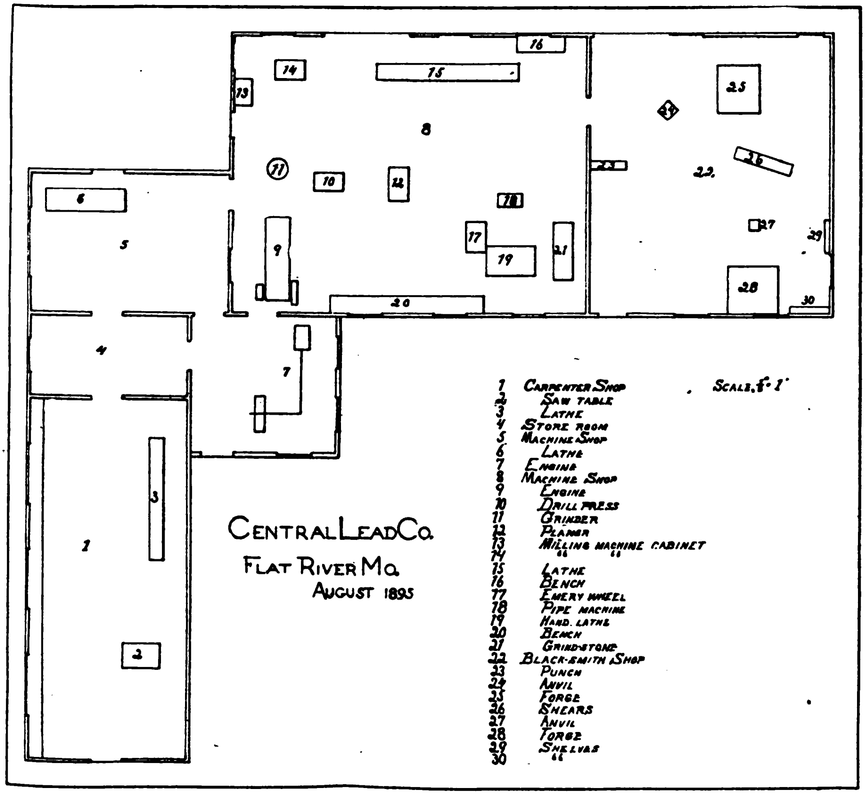
Central Lead Co.
Flat River Mo.
August 1895
Scale, ⅛" = 1'
1 Carpenter Shop
2 Saw table
3 Lathe
4 Store room
5 Machine Shop
6 Lathe
7 Engine
8 Machine Shop
9 Engine
10 Drill press
11 Grinder
12 Planer
13 Milling machine cabinet
14 " "
15 Lathe
16 Bench
17 Emery wheel
18 Pipe machine
19 Hand. lathe
20 Bench
21 Grind-stone
22 Black-smith Shop
23 Punch
24 Anvil
25 Forge
26 Shears
27 Anvil
28 Forge
29 Shelves
30 "
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TABLE I—LEAD AND ZINC MINES.

Comparative table for the years 1894 and 1895.

	1894.	1895.	Increase.	Decrease.
No. counties producing lead and zinc ores	10	9	....	1
No. shafts operated during the year.....	563	640	77	....
No. tons of lead ore mined during year..	52,003	61.618	9,615	....
No. tons of zinc ore mined during year..	89,150	101,294	12,144	....
Amount received for lead ore product....	$1.949,568	$1,852,400	....	$971 68
Amount received from zinc ore product ..	$1,337,910	$1.707,665	$369,755	....
Total amount received for the output of both lead and zinc..................	$3,287,478	$3,560,066	$272,588	....
Average price per ton received for lead ore	$37 48	$30 06	....	$7 42
Average price per ton received for zinc ore	$15 00	$16 86	$1 86	....
Total number miners employed..........	3,421	3,713	292	....
‘‘ outside men employed....	1,644	1,660	16	....
‘‘ prospectors at work........	912	841	....	81
‘‘ all men empl'd and prospec'g	5,977	6,214	237	....
‘‘ employes fatally injured...	17	23	6	....
‘‘ ‘‘ non-fatally injured	29	32	3	....
‘‘ wives made widows.......	8	14	6	....
‘‘ children made fatherless....	13	43	30	....
No. tons of ore mined for each life lost...	8,303	7,083	....	1,220

TABLE II

Is a showing, by counties, of the number of mines, employes, kind of machinery, tonnage, price per ton and value of the product in each county producing the metals; also quantity of the several grades in both lead and zinc ores, and the average price received for each grade :

TABLE II.—SHOWING, BY COUNTIES, PRODUCT, VALUE, PLANT, EM-
FOR THE YEAR END-

County.	Number of shafts........	Machinery in use.				Employes including prospectors			Lead ore product.		
		Boilers......	Pumps	Crushers	Steam jigs...	Miners	Other empl's	Total empl's	High grade.	Low grade...	Total tons lead ore ....
Greene	2	4	2	2	7	12	12	24	212.50	......	212.50
Jasper	357	222	94	95	105	1,869	1,134	3,003	15,455.12	......	15,455.12
Jefferson	5	1	...		..	75	20	95	455.00	......	455.00
Lawrence	104	41	34	19	24	476	268	744	2,928.00	224.25	3,152.25
Madison	3	7	16	1	12	285	115	400	3,546.25	......	3,546.25
Newton.	69	40	34	7	16	311	308	619	1,784.50	......	1,784.50
St. Francois	10	42	35	18	214	536	590	1,126	34,510.00	......	34,510.00
Washington	88	3	3	1	1	106	47	153	2,503.10	....	2,503.10
Wright	2	3	1	1	3	43	7	50	....	... .	.... . .
Totals	640	363	219	144	382	3,713	2,501	6,214	61,394.50	224.25	61,618.75

Total tons high grade lead ore, 61, 394.50; average price received, $30.10 per ton, amounting to $1,848,247.73.

Total tons low grade lead ore, 224.25; average price received, $18.52 per ton, amounting to $4,153.11.

Total tons both grades lead ore, 61,618.75; average price all lead sold, $30.06 per ton; gross receipts from sale of lead ores, $1,852,400.84.

PLOYES AND MACHINERY OF LEAD AND ZINC MINES OF MISSOURI ING JUNE 30, 1895.

Zinc ore product.			Av. price per ton rec'd				Amount received for output of		Total amount received for output of lead and zinc ores...... ....
			Lead ore.		Zinc ore.				
High grade..	Low grade...	Total tons zinc ore....	High grade..	Low grade...	High grade..	Low grade...	Lead ore.....	Zinc ore	
900.00	....	900.00	$33 00	.. ..	$19 00	......	$7,012 50	$17,100 00	$24,112 50
73,423.16	281.50	73,704.66	32 95	....	18 17	$13 45	509,184 53	1,337,865 20	1,847,049 73
....	....	....	34 68	..	...	....	15,781 40	....	15,781 40
9,233.50	8,560.33	17,793.83	34 06	$18 52	17 72	9 83	103,876 72	247,885 20	351,761 92
....	....	.....	28 23	......	......	....	100,110 63	....	100,110 63
1,809.00	6,989.50	8,798 50	33 45	.....	17 49	10 20	59,679 21	102,972 00	162,651 21
....	....	....	28 52	....	......	....	984,314 64	....	984,314 64
....	....	....	28 94	....	....	......	72,441 21	....	72,441 21
97.00	.	97.00		....:..	19 00	.....	....	1,843 00	1,843 00
85,462⅔	15,831⅓	101,294.00	30 10	18 52	18 12	10 05	1,852,400 84	1,707,665 40	3,560,066 24

Total tons high grade zinc ore, 85,462.⅔; average price received, $18.12 per ton, amounting to $1,548,438.26.

Total tons low grade zinc ore, 15,831⅓; average price received, $10.05 per ton, amounting to $159,227.14.

Total tons both grades zinc ore, 101,294; average price all zinc sold, $16.86 per ton, gross receipts from sale of zinc ores, $1,707,665.40.

Total receipts from sale of the output of lead and zinc for year ending June 30, 1895, $3,560,066.24.

TABLE III

Is a showing of the output of lead and zinc ores by counties for each of the past four years; also the total value of the product for this year.

TABLE III—COMPARATIVE TABLE OF LEAD AND ZINC PRODUCT OF MISSOURI, 1892 TO 1895, INCLUSIVE.

County.	Tons mined.								To'al receipts at mines for output of lead and zinc, year 1895........
	Lead ore.				Zinc ore.				
	1892.	1893.	1894	1895.	1892.	1893	1894.	1895.	
Greene	406.11	....	102¾	212½	898.60	....	. ...	900	$24,112 50
Jasper.........	11,500.95	10,241	14,762	15,455	106,014.01	82,587.2	63,877	73,704	1,847,049 73
Jefferson	412.60	1,023.7	424	455	2,075	1,562	921	....	15,781 40
Lawrence.....	5,720.90	2,194.5	3,567	3,152	13,861.28	16,178.8	15,535¼	17,793	351,761 92
Madison.......	4,403.25	4,155.9	3,493	3,546	....	.. ..	....	....	100,110 63
Newton	1,249.63	1,457.1	1,690¼	1,784	8,342.75	8,043	7,520½	8,798	162,651 21
St. Francois ..	23,740	20,348.8	26,126½	34,510	....	. ...	....	....	984,314 64
Washington...	1,793.63	876.6	1,704¾	2,503	....	....	....	....	72,441 21
Wright........	....	....	....	....	....	....	100	97	1,843 00
Totals.....	49,626.42	40,297.6	52,003¼	61,618	131,487.64	108,591	89,150¾	101,294	3,560,066 24

TABLES IV, V AND VI.

These should be permanent tables and the record kept up year after year, as they are extensively made use of by the trade.

Table IV shows the average price received each month for the past 20 years for common western spelter. (Zinc.)

Table V shows the zinc ore product of the State from 1873 to June 30, 1895, inclusive.

Table VI shows the price of pig lead in New York and St. Louis for each year since 1871.

TABLE IV. ZINC—PRICES OF COMMON WESTERN SPELTER IN NEW YORK, 1875-1894, INCLUSIVE.

[*Cents per pound. Figures in parentheses are combination prices.*]

Years.	January.		February.		March.		April.		May.		June.		July.		August		September		October.		November.		December.		Year ....
	Highest ...	Lowest ...	Highest ...	Lowest ...	Highest ...	Lowest ...	Highest ...	Lowest ...	Highest ...	Lowest ...	Highest ...	Lowest ...	Highest ...	Lowest ...	Highest ...	Lowest ...	Highest ...	Lowest ...	Highest ...	Lowest ...	Highest ...	Lowest ...	Highest ...	Lowest ...	
1875	6.75	6.37	6.25	6.25	6.50	6.20	(7.00)	6.50	(7.25)	7.15	(7.25)	7.15	(7.35)	7 25	(7 25)	7.10	(7 25)	7.10	(7.40)	7.15	(7.40)	7.15	(7.40)	7 15	7.00
1876	(7.60)	7.40	(7.75)	7.50	(7.75)	7.62	(8.00)	7.60	(8.00)	7.75	(8.00)	7.25	7.25	7.12	7.25	7.00	7.12	6.80	6 75	6 62	6.62	6.37	6.50	6.37	7.25
1877	6.50	6.25	6.62	6.50	6.50	6.37	6.37	6 25	6.25	6.00	6.12	5.87	5.87	5.62	5.90	5.80	5.87	5.75	5.90	5.70	5.87	5.62	5 75	5.50	6.03
1878	5.75	5.50	5.62	5.25	5.62	5.25	5.25	5.00	5.00	4.62	4.62	4.25	4.75	4.50	4.87	4.50	4.87	4.75	4.82	4.50	4.75	4.50	4.37	4.25	4.88
1879	4.50	4.25	4.62	4.40	4.62	4.37	4.75	4.25	4.50	4.25	4.37	4.12	4.75	4.37	5 62	4.80	6.00	5.62	6.37	6.00	6.25	5.87	6.25	6.00	5.036
1880	6.50	5.87	6.75	6.37	6.75	6.50	6.50	6.12	6.00	5.62	5.50	5.12	5.00	4.87	5.25	4.87	5.12	4.75	5.00	4 87	4.90	4.65	4.75	4.65	5.51
1881	5.25	4.87	5.25	5.12	5.00	4.87	5.12	4.75	5.00	4.87	5.00	4.75	5.00	4.75	5.12	5.00	5.25	5.00	5.37	5.25	5.87	5.50	6.00	5.87	5.243
1882	6.00	5.75	5.75	5.62	5.62	5.37	5.50	5.25	5.62	5.25	5 37	5 25	5.37	5.12	5.50	5.12	5.37	5.12	5 37	5.12	5.12	4.87	4.87	4.50	5.325
1883	4.62	4.50	4.62	4.50	4.75	4 62	4.75	4.60	4.75	4.50	4.62	4.37	4.50	4.30	4.40	4.30	4.50	4.40	4.45	4.35	4.40	4 37	4 37	4.35	4.495
1884	4.37	4.20	4.40	4.25	4 60	4.40	4.65	4.50	4.60	4.45	4.60	4 45	4.55	4 45	4.62	4.52	4.62	4.50	4.55	4.40	4.40	4.30	4.25	4.00	4.443
1885	4.50	4.12	4.30	4.25	4.30	4.12	4 30	4.12	4.25	4.10	4.10	4.00	4.40	4.10	4.60	4 40	3.62	4.50	4.62	4.50	4.60	4.45	4.60	4.45	4.345
1886	4.50	4.30	4.55	4.30	4 60	4 50	4.60	4.50	4 60	4.40	4.40	4.35	4.40	4.30	4.40	4.30	4.40	4.25	4.30	4.25	4.30	4.25	4.50	4.35	4.40
1887	4.60	4.50	4.60	4.40	4.60	4.40	4.65	4.45	4.65	4.45	4.65	4 50	4 50	4.50	4.60	4.55	4.65	4.60	4.65	4.50	4.80	4.52	5.87	5.00	4 625
1888	5.37	5.20	5.35	5.25	5.25	4.87	4.87	4.60	4.65	4.60	4.60	4.50	4.55	4.50	4.87	5.40	5.12	4.75	5.12	4.87	5 12	4.87	5.12	4.87	4.91
1889	5.00		4.95		4.75		4.675		4.75		4.975		5.10		5.20		5.175		5.10		5.20		5.40		5.023
1890	5.41		5.28		5.187		5.085		5.35		5.575		5.55		5.276		5.600		6.012		6.122		6.106		5.55
1891	5.55		5.025		5 125		5.000		4.85		5.083		5.063		5.01		4.958		5.02		4.83		4.75		5.02
1892	4.69		4.62		4 89		4.68		4.79		4.71		4.78		4.69		4.53		4.41		4.47		4.40		4.63
1893	4.39		4.33		4 28		4.38		4.41		4.27		4.13		3.89		3.69		3.68		3.65		3.80		4.075
1894	3.56		3.85		3.89		3.62		3.47		3.40		3.43		3.38		3.44		3.45		3.36		3.43		3.52

St. Louis prices are usually 0.3 below New York prices.

TABLE V.

Showing the Zinc Ore Product of Southwest Missouri from the Year 1873 to 1895, inclusive, together with the average price received each year for the ore and total value of same.

Year.	No. of tons.	Average price.	Am't received for output.	Year.	No. of tons.	Average price.	Am't received for output.
1873.......	960	$9 00	$8,640 00	1885.......	42,200	$17 50	$738,500 00
1874.......	5,100	10 00	51,000 00	1886.......	48,400	18 50	895,400 00
1875.	3,600	12 00	36,000 00	1887.......	57,300	19 00	1,088,700 00
1876.......	11,000	13 50	148,000 00	1888.......	61,550	21 00	1,292,550 00
1877.	10,000	14 00	140,000 00	1889.......	82,357	21 44	1,765,734 08
1878.......	12,000	16 50	198,000 00	1890.......	100,248	22 51	2,256,583 00
1879.......	20,000	17 00	340,000 00	1891.......	123,752	21 60	2,673,063 36
1880.......	27,500	16 00	440,000 00	1892.......	131,488	21 76	2,862,475 08
1881.	35,500	16 50	579,150 00	1893......	108,591	20 57	2,245,028 80
1882.	34,900	16 90	589,100 00	1894.......	89,150	*15 00	1,337,910 36
1883.......	35,700	17 50	624,750 00	1895.......	101,294	16 86	1,707,665 40
1884.	43,200	18 00	777,600 00	Totals.	1,185,790	19 23	22,795,850 08

In the above table the last five years are our fiscal years, ending June 30.

TABLE VI.

Showing the price of Pig Lead in New York and St Louis per 100 lbs., 1871-1894, inclusive.

Year.	New York.	St. Louis.	Year.	New York.	St. Louis.
1871....................	$6 40	$7 18	1887....................	$4 47	$4 29
1873....................	6 30	6 96	1888....................	4 41	4 25
1874....................	6 00	6 55	1889....................	3 80	3 62
1875.	5 95	6 78	1890....................	4 33	4 22
1879....................	4 18	3 95	1891....................	4 32	4 15
1880....................	5 05	4 89	1892....................	4 07	3 89
1884....................	3 73	3 57	1893....................	3 65	3 48
1885....................	3 95	3 75	1894....................	3 29	3 13
1886....................	4 63	4 46			

TABLE VII.

This table shows the shipment of zinc ore from Southwest Missouri, in car-load lots to the various smelters of the country. It also shows the station from which shipment was made, the number of carloads shipped and the respective smelter receiving the shipment and the quantity received by each.

The data from which this table has been constructed was kindly furnished by Prof. Hollabaugh, of Joplin, Mo.

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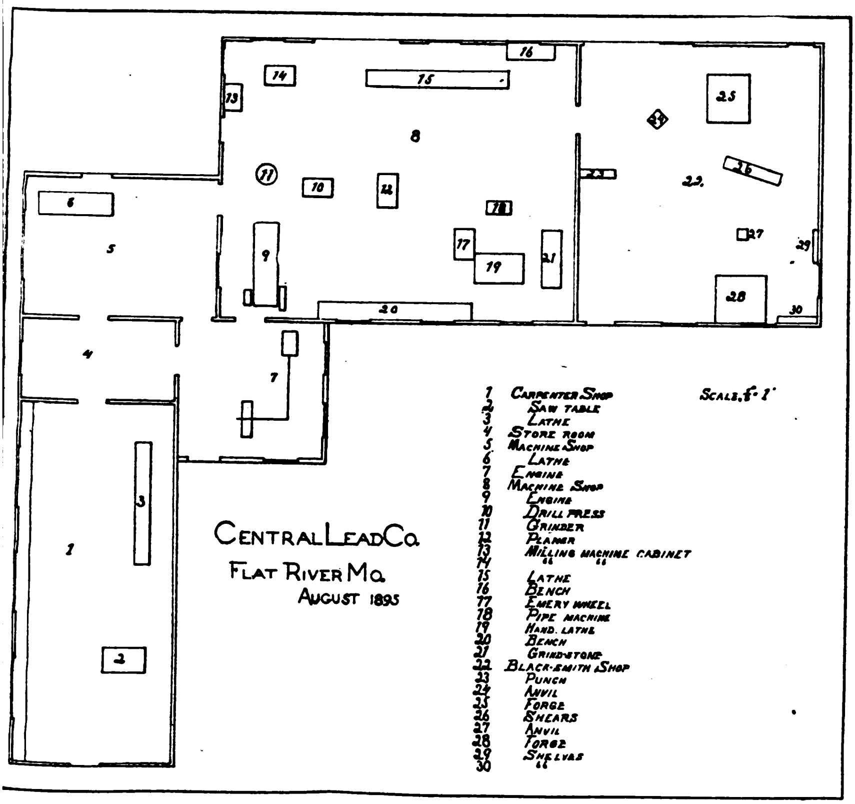
Central Lead Co.
Flat River Mo.
August 1895
Scale, ⅛" = 1'
1 Carpenter Shop
2 Saw table
3 Lathe
4 Store room
5 Machine Shop
6 Lathe
7 Engine
8 Machine Shop
9 Engine
10 Drill press
11 Grinder
12 Planer
13 Milling machine cabinet
14 " "
15 Lathe
16 Bench
17 Emery wheel
18 Pipe machine
19 Hand. lathe
20 Bench
21 Grind-stone
22 Black-smith Shop
23 Punch
24 Anvil
25 Forge
26 Shears
27 Anvil
28 Forge
29 Shelves
30 "

TABLE IX—SHOWING THE PLANT, EMPLOYES, TONNAGE AND VALUE THE YEAR END

GREENE

Name of mine, company or owner of mine.	Name of lessee or operator.	Shafts oper.		Machinery in use.				Employes.		
		Number....	Depth	Boilers.	Pumps........	Crushers	Steam-jigs ...	Miners......	Others........	Total. ....
Gumbo mine..................	R. P. Boyer	2	85	4	2	2	7	12	12	24

JASPER

Name of mine, company or owner of mine.	Name of lessee or operator.	Shafts oper.		Machinery in use.				Employes.		
		Number....	Depth	Boilers.	Pumps........	Crushers	Steam-jigs ...	Miners......	Others........	Total. ....
A. P. B. Mining Co.............	A. P. B. Mining Co.	2	60	2	2	....	.. .	6	1	7
Blende Mining Co..............	Blende Mining Co. limited	1	175	1	2	....	....	4	6	10
Centre Creek Mining Co.	Centre Creek Mining Co..	50	160	16	11	12	10	250	100	350
Chatham Mining Co	Chatham Mining Co	23	150	24	2	10	10	225	7	232
Daugherty & Davey	Daugherty & Davey.	1	120	1	....	1	1	8	....	8
Daugherty, Davey & Daugherty	" Davey & Daugherty	7	120	2	1	....	1	40	4	44
Davey, Tower & Co..........	Davey, Tower & Co.	5	135	6	1	4	3	25	20	45
Deeming Mining Co	Deeming Mining Co.......	1	150	1	....	1	....	10	15	25
Edgar mine......................	S. C. Edgar	5	150	1	1	....	....	10	10	20
Eleventh Hour Mining Co......	J. W. Ayler..............	30	170	30	2	11	11	220	6	226
Empire Zinc Co................	Empire Zinc Co	21	100	5	1	1	8	42	84	126
Frisco	....	3	120	1	1	....	....	6	4	10
Gramed & Irwin................	Gramed & Irwin.	4	100	4	2	1	....	30	....	30
Granby M. & S. Co. (Oronogo).	Granby Mining & Smelt Co	10	45	2	2	1	1	35	10	45
Granby M. & S Co. (Joplin) ...	" "	18	80	14	11	5	1	85	110	195
Guinn & O'Keefe	Guinn & O'Keefe	3	150	2	3	1	1	12	....	12
Hardin Mining Co..............	Hardin Mining Co.........	3	180	4	1	2	2	25	1	26
Hardin, M. L	M L Harden.............	3	80	1	....	....	...	15	....	15
Homestead Zinc & Lead Co	Homestead Zinc & L. Co..	1	180	1	2	....	....	5	5	10
Ihlsing mine...................	A. O. Ihlsing & Co	1	180	3	3	4	4	15	16	31
Ihlsing Mining Co............ ...	Ihlsing, Bevin & Leonard	3	75	2	1	3	2	6	6	12
Indiana & Missouri.............	J. C. Dingle..............	5	75	4	3	....	....	35	50	85
Leckie, W. M	Harrison & James.........	10	100	7	2	1	....	65	1	66
Leckie, W. M	Jacobs Bros...............	13	100	10	3	1	....	50	2	52
Lewis, J. F	J. F. Lewis	1	165	1	....	1	....	18	....	18
Lichliter, Lear & Co.	N. B. Lichliter	1	140	2	1	1	2	10	....	10
McCorkle Hill Mining Co.......	McCorkle Hill Mining Co.	3	170	2	1	1	1	14	18	32
Mahaska Mining Co............	Mahaska Mining Co.......	9	40	....	....	....	....	6	2	8
Margerum Mining Co...........	Margerum Mining Co......	20	50	2	2	....	....	40	....	40
Moonshine M. Co., C. E. Diehl	Turk & Currah	1	100	1	....	....	....	2	5	7
Mound City Mining Co..........	Mound City Mining Co....	1	185	2	1	2	4	14	8	22
Perry mines	E. N. Perry	6	175	5	....	4	9	45	1	46
Reed Mining Co......	C. W. Reed...............	1	126	2	2	1	....	8	12	20
Richland Mining Co.....	A. J. Fountain	8	160	3	2	3	6	27	3	30
Rex Mining Co..................	Rex Mining Co............	30	100	20	1	6	4	150	25	175
Roach mine....	Jas. Roach & Co...........	1	40	....	....	....	....	2	....	2
Royal Blue Mining Co	Royal Blue Mining Co .. .	2	105	1	....	2	....	8	10	18
Scotia Mining Co	H. H. Gregg....	2	60	3	1	....	....	13	5	18
South Joplin Lead & Zinc M. Co.	South Joplin L. & Z. M. Co.	4	140	3	4	1	3	10	11	21
Swarland mines................	P. L. Swartz.	3	50	1	4	1	1	5	2	7
Taylor, Jno. H	Taylor, Campbell & Co...	6	3	3	1	1	....	10	4	14
Taylor Land and Mining Co. ..	Taylor Land & Mining Co.	1	50	....	....	....	....	2	1	3
Tenderfoot Mining Co..........	Fred Hill..................	1	200	2	4	1	10	19	10	29
The Get There Mining Co	Jas. O'Neil......	5	160	6	2	....	....	20	8	28
Tower, Davey & Co.	Tower, Davey & Co.......	5	130	3	1	2	2	20	15	35
Troup Mining Co............. .	Troup Mining Co..........	4	200	6	1	4	4	80	6	86
Victor Mining Co..............	Victor Mining Co	1	213	2	1	3	4	30	16	46
Western Zinc Co	Western Z. Co. (receivers)	15	80	5	5	1	....	50	10	....
West Joplin Lead & Zinc Co. ..	West Joplin L. & Z. Co. ..	1	126	1	1	1	. ..	12	1	13
Wright Mining Co..............	Wright Mining Co.........	2	110	2	2	...	....	20	1	21
Totals	....	357	..	222	94	95	105	1869	632	2501

OF THE LEAD AND ZINC PRODUCT OF THE MINES IN MISSOURI FOR ING JUNE 30, 1895.

COUNTY.

No. of men prospecting on land........	Lead ores.		Zinc ores.		Am't rec'd per ton, lead ores		Am't rec'd per ton zinc ores.		Amount received for lead output........	Amount received for zinc output........	Total amount received from output of lead and zinc for the year
	High grade...	Low grade...	High grade...	Low grade...	High grade...	Low grade...	High grade...	Low grade...			
....	212.50	....	900	... ..	$33 00	....	$19 00	......	$7,012 50	$17,100 00	$24,112 50

COUNTY.

10	25	....	6	......	$34 00	....	$17 00	......	$8 50	$102 00	$110 50
....	10 50	....	39	......	32 30	....	19 86	......	1,112 55	776 08	1,888 63
25	773	....	10,820	......	34 20	... ...	17 02	......	26,438 41	184,161 50	210,599 91
15	479	....	6,775	......	31 73	....	17 38	......	15,198 73	117,752 98	132,951 71
....	41.50	......	51.50	......	34 00	....	15 50	......	1,416 95	798 25	2,215 20
3	434.34	....	363	......	33 50	....	15 50	......	14,552 57	5,626 50	20,179 07
3	142.50	....	1,469	......	33 50	....	16 65	......	4,769 39	24,452 93	29,222 32
....	143.33	... ...	197	......	32 50	....	20 00	......	4,667 41	3,940 00	8,607 41
3	35.25	....	361	......	34 00	....	17 00	......	1,199 00	6,137 00	7,336 00
80	1,429.25	....	10,911	......	34 24	....	18 25	......	48,937 52	209,125 75	258,063 27
40	1,297.50	....	4,943.35	......	32 74	....	17 30	......	42,477 53	85,519 95	127,997 48
....	7.50	....	566.75	......	34 42	....	18 66	......	258 15	10,508 85	10,767 00
50	....	....	160	......	....	....	20 00	......		3,200 00	3,200 00
10	324.50	....	....	13.75	24 27	....	....	$11 00	7,872 50	151 25	8,023 75
52	1,967.25	......	4,298	.....	31 28	....	18 72	......	61,532 36	80,467 89	142,000 25
...	72.50	....	296.76	......	33 63	....	19 86	.. ...	2,437 74	5,694 85	8,132 59
....	128.50	....	965	......	32 50	....	17 00	......	4,176 22	16,406 70	20,582 92
....	....	....	244.60	......	....	....	17 20	......	....	4,207 05	4,207 05
3	53	....	467	......	34 00	....	17 50	......	1,797 50	8,172 50	9,970 00
...	....	....	1,955	......	....	....	19 61	......	....	38,343 51	38,343 51
10	....	....	68.20	......	....	....	18 25	......	....	1,234 33	1,234 33
....	81	....	596	......	33 00	....	19 79	......	2,675 64	11,799 30	14,474 94
20	680.50	....	2,250	......	34 04	.. ....	19 33⅓	......	23,195 64	43,492 50	66,688 14
26	451.50	....	655.50	......	34 08	....	19 33⅓	......	15,021 46	11,532 05	26,553 51
....	24	....	451.50	......	34 00	....	16 50	......	800 00	7,450 00	8,250 00
- ..	....	....	60	......	....	....	15 00	......	....	901 09	901 09
6	16.20	....	2,284	......	34 00	....	19 35	......	550 00	44,205 80	44,755 80
6	225.75	....	....	10.75	25 30	....	....	12 82	5,726 05	137 04	5,863 09
50	824.50	....	110	......	33 00	....	15 00	......	27,208 50	1,648 64	28,857 14
....	61	....	33	......	34 00	.... ..	17 00	......	2,080 40	561 00	2,641 40
4	171.50	......	1,289.50	......	30 90	....	17 45	......	5,299 35	22,483 34	27,782 69
5	164	. .....	3,008	......	33 24	....	17 92	......	5,434 40	53,910 36	59,344 76
....	1.50	....	139.50	......	34 00	....	17 00	......	45 90	2,371 00	2,416 90
.. .	736.25	....	308.50	......	34 00	....	17 50	. ....	25,032 50	5,392 08	30,424 58
10	1,675	....	5,809	......	33 62	....	17 82	.....	56,558 40	103,516 38	160,074 78
....	5	....	114	......	32 00	....	19 90	......	87 23	2,268 60	2,355 83
12	103.50	....	850	......	33 00	....	16 25	......	3,415 50	13,806 29	17,221 79
6	....	....	484	......	....	....	18 00	......	....	8,541 69	8,541 69
....	193	....	1,285	......	33 60	....	19 20	......	6,484 80	35,040 00	41,524 80
....	16.50	....	27	......	32 00	....	15 00	......	528 00	405 00	933 00
....	104	....	290	......	33 00	....	20 00	.....	3,432 00	5,800 00	9,232 00
4	59	....	....	......	26 00	....	....	....	1,537 96	....	1,537 96
....	411.50	....	....	257	33 68	....	....	13 56	13,860 46	3,492 54	17,353 00
10	357	....	224	......	33 00	....	16 50	......	11,793 13	3,696 00	15,489 13
5	109.25	....	457	......	33 50	....	15 75	.....	3,706 40	7,197 75	10,904 15
....	242.75	....	2,752.50	......	33 80	....	16 80	......	8,235 05	46,242 00	54,477 05
....	....	....	2,917.50	......	....	....	19 42	......	....	56,670 55	56,670 55
18	1,158 50	....	1,119.50	......	33 70	....	17 37	......	39,046 67	19,460 80	58,507 47
....	163 50	....	886	......	36 00	....	20 00	......	5,882 90	17,713 53	23,596 43
16	79 25	....	75	......	34 00	....	18 00	......	2,693 16	1,350 00	4,043 16
502	15,455 12	....	71,423.16	281½	32 95	....	18 17	13 45	509,184 53	1,337,865 20	1,847,049 73

EMPLOYES, TONNAGE

JEFFERSON

Name of mine, company or owner of mine.	Name of lessee or operator.	Shafts oper.		Machinery in use.				Employes.		
		Number....	Depth........	Boilers.....	Pumps.........	Crushers.....	Steam jigs....	Miners.........	Others.........	Total.........
Valle Mining Co.	Valle Mining Co...........	5	100	1	....	....	....	75	10	85

LAWRENCE

Name of mine, company or owner of mine.	Name of lessee or operator.	Number	Depth	Boilers	Pumps	Crushers	Steam jigs	Miners	Others	Total
Berry, F., mine.	B. A. Berry	12	35	....	....	....	....	7	5	12
Black Land Mining Co	Black Land Mining Co....	4	80	1	1	1	....	8	20	28
Brinkerhoff Zinc Co.............	Brinkerkoff Zinc Co.......	5	80	5	3	3	2	20	10	30
Campbell & Co., land...........	Campbell & Schmook.....	3	108	3	4	2	1	66	2	68
Cleveland & Aurora M. L. Co..	Clevel'd & Aurora M. L.Co	18	95	12	3	4	2	60	45	105
Dayton Mining Land......	C. M. Dayton	2	35	....	....	...	....	10	1	11
Hallenback & Co., E	E. Hallenbeck & Co.	1	155	1	1	2	2	11	7	18
Kentucky Mining Co........ ..	Kentucky Mining Co......	17	65	3	2	....	....	36	48	84
Lisles, T. J.	T. J. Liles	5	70	....	4	2	10	37	....	37
Louisville Lead and Zinc Co. ..	Louisville L. & Z. Co......	9	70	2	2	1	...	27	12	39
Minor & Rodgers	Minor & Rodgers	1	127	1	1	1	....	4	....	4
Mount Vernon Mining Co	Mt. Vernon M. Co.........	1	160	1	1	1	7	30	5	35
Rinker, G. W	G W. Rinker	1	105	1	1	....	....	5	....	5
Rinker Lead & Zinc Co..........	Rinker Lead & Zinc Co...	15	100	4	8	....	....	20	2	22
Schmook, John.......	John Schmook............	4	105	1	.. .	....	....	40	2	42
Terre Haute L. & M. Co.........	Terre Haute L. & M. Co..	5	110	5	2	1	...	85	....	85
Union Lead and Zinc Co.........	Union Lead & Zinc Co....	1	90	1	1	1	....	10	10	20
Totals	....	104	....	41	34	19	24	476	169	645

MADISON

Name of mine, company or owner of mine.	Name of lessee or operator.	Number	Depth	Boilers	Pumps	Crushers	Steam jigs	Miners	Others	Total
Mine La Motte..................	Rowland Hazard.........	3	120	7	16	1	12	285	101	386

NEWTON

Name of mine, company or owner of mine.	Name of lessee or operator.	Number	Depth	Boilers	Pumps	Crushers	Steam jigs	Miners	Others	Total
Gobbler mine....................	Henry Gross...	1	100	2	1	1	4	9	9	18
Granby Mining & Smelting Co.	Granby M. & S. Co........	48	90	31	30	3	10	225	35	260
Little Nugget Mining Co.......	Little Nugget Mining Co.	1	90	....	....	....	....	7	2	9
Roaring Springs L. & M. Co....	Roar'g Spr'gs L. & M. Co.	12	60	3	....	....	....	40	30	70
Saganaw Lead & Zinc Co.	Saganaw Lead & Zinc Co.	2	40	....	....	....	....	4	....	4
Spring City Mining Co..........	Spring City Mining Co....	4	130	4	3	3	2	20	22	42
Turkey Hen Mining Co..........	Turkey Hen Mining Co...	1	130	....	....	....	....	6	....	6
Totals	....	69	...	40	34	7	16	311	98	409

ST. FRANCOIS

Name of mine, company or owner of mine.	Name of lessee or operator.	Number	Depth	Boilers	Pumps	Crushers	Steam jigs	Miners	Others	Total
Central Lead Co	Central Lead Co.....	1	370	4	2	1	17	36	36	72
Deslodge Consolidated L. Co..	Deslodge C. L. Co.........	1	325	6	9	2	28	75	85	160
Doe Run Lead Co.........	Doe Run Lead Co....	2	436	11	12	4	25	101	129	230
Leadington Lead Co	Leadington Lead Co	1	300	3	3	1	12	40	20	60
St. Joseph Lead Co......	St. Joseph Lead Co.......	5	250	18	9	10	132	284	214	498
Totals	....	10	....	42	35	18	214	536	484	1020

AND VALUE—Continued.

COUNTY.

No. of men prospecting on land.........	Lead ores.		Zinc ores.		Am't rec'd per ton, lead ores		Am't rec'd per ton zinc ores.		Amount received for lead output......	Amount received for zinc output.........	Total amount received from output of lead and zinc for the year
	High grade....	Low grade....	High grade....	Low grade....	High grade....	Low grade....	High grade....	Low grade....			
10	455.	....	....	....	$34 68	... .	......	.....	$15,781 40	....	$15,781 40

COUNTY.

....	7⅛	.... ..	....	17.50	$32 00	....	......	$8 25	$116 16	$144 37	$260 53
2	209⅛	....	....	338.	34 00	... .	......	10 50	7,110 25	3,549 00	10,659 25
4	....	46.50	....	279.	....	$23 89	.....	13 10	1,110 96	3,654 90	4,765 86
....	254.	....	3,390.50	360.75	34 00	....	$17 78	10 00	8,633 45	63,916 55	72,550 00
15	374.	....	1,070.	3,566.	33 00	. ....	16 50	9 50	12,342 00	51,532 00	63,874 00
3	35.	45.	193.	53.88	33 00	16 64	.. ...	7 40	1,910 00	398 82	2,308 82
....	3.	....	....	....	33 00	....	19 50	.....	99 00	3,763 50	3,862 50
15	260.1-7	66.75	792.	168.	32 80	17 80	17 75	8 40	9,772 78	15,469 20	25,241 98
30	189	....	1,560.	....	34 00	....	18 00	......	6,426 00	28,080 00	34,506 00
6	576¼	....	....	441.26	34 50	....	.....	9 22	19,892 01	4,068 41	23,960 42
24	....	....	146.50	....	....	....	20 00	.....	....	29 38	2,938 00
....	....	....	800.	....	.. ...	....	18 50	......	....	14,800 00	14,800 00
....	.75	....	....	58.50	37 00	....	...	10 00	27 19	585 00	612 19
...	30.	66	396.	443.50	34 00	16 65	20 00	9 50	2,118 65	12,133 25	14,251 90
....	132.1-6	....	57.50	531.	34 00	......	16 00	8 50	4,493 65	5,431 00	9,924 65
....	440.75	....	713.	900.	36 00	....	16 50	11 97	15,867 36	22,132 64	38,000 00
....	416.50	....	115.	1,403.	33 00	....	17 75	9 60	13,736 25	15,509 57	29,245 82
99	2,928.	224¼	9,233½	8,560⅓	34 06	18 52	17 72	9 83	103,876 72	247,885 20	351,761 92

COUNTY.

14	3,546.25	....	....	....	$28 23	....	......	......	$100,110 63	....	$100,110 63

COUNTY.

....	....	....	430.00	77.00	....	....	$19 50	$9 50	....	$9,116 50	$9,116 50
195	1,300.00	....	....	5,835.00	$33 51	....	......	9 50	$43,567 50	55,432 50	99,000 00
....	....	....	....	90.50	....	....	.....	14 50	....	1,312 00	1,312 00
15	247.00	....	....	9.87	34 00	....	......	14 00	8,398 00	13,818 00	22,216 00
....	6 50	....	....	....	32 00	....	......	.....	208 00	....	208 00
...	231.00	....	1,279.00	....	32 50	....	17 00	...	7,505 71	21,743 00	29,248 71
....	....	....	100.00	....	....	....	15 50	.....	... .	1,550 00	1,550 00
210	1,784.50	....	1,809.00	6,989.50	33 45	....	17 49	10 20	59,679 21	102,972 00	162,651 21

COUNTY.

....	3,833.00	....	....	....	$21 63	....	.....	....	$82,929 86	....	$82,929 86
....	4,200 00	....	....	... ...	30 00	....	... ..	.....	126,000 00	....	126,000 00
....	5,700.00	....	....	....	35 40	....	....	.....	201,800 00	....	201,800 00
....	345.50	....	.. ..	....	28 00	....	....	....	9,674 00	....	9,674 00
6	20,431.50	....	....	.. ..	27 60	....	....	......	563,910 78	....	563,910 78
6	34,510.00	....	....	. .....	28 52	....	....	......	984,314 64	....	984,314 64

EMPLOYES, TONNAGE

WASHINGTON

Name of mine, comyany or owner of mine.	Name of lessee or operator.	Shafts Oper.		Machinery in use.				Employes.		
		Number	Depth	Boilers	Pumps	Crushers	Steam-jigs	Miners	Others	Total
Cyclone mines	Cyclone Mining Co	2	50	1	1	1	1	15	20	35
Long, William	Wm. Long	3	20	....	....	....	....	6	3	9
Higgenbotham	Z. F. Higgenbotham	40	35	....	....	....	....	40	....	40
Long & White	Long & White	5	40	....	....	....	....	5	....	5
McArthur Bros	McArthur Bros	15	60	....	....	....	....	....	....	....
Palmer Lead Co	Palmer Lead Co	6	75	2	2	....	....	40	10	50
Shibboleth Lead Mining Co	Shibboleth L. & M. Co	12	30	....	....	....	....	....	6	6
Union Mining & Smelting Co	Union Min'g & Smelt'g Co	5	20	....	....	....	....	....	8	8
Totals		88	....	3	3	1	1	106	47	153

WRIGHT

Dodson Lead & Zinc Co	Dodson Lead & Zinc Co	2	120	3	1	1	3	43	7	50

AND VALUE—Continued.

COUNTY.

No. of men prospecting on land........	Lead ores.		Zinc ores.		Am't rec'd per ton, lead ores		Am't rec'd per ton zinc ores.		Amount received for lead output........	Amount received for zinc output........	Total amount received from output of lead and zinc for the year
	High grade...	Low grade...	High grade...	Low grade...	High grade...	Low grade...	High grade...	Low grade...			
....	300.00	......	... .	... .	$26 00	....	......	......	$7,800 00	....	$7,800 00
....	11.10	....	....	....	26 00	....	....	......	288 54	....	288 54
....	558.00	....	....	... ...	26 00	....	......	......	14,500 00	....	14,500 00
....	12.50	....	....	....	25 00	....	......	......	312 50	....	312 50
....	415.50	....	....	....	31 00	....	......	......	12,880 17	....	12,880 17
...	400.00	....	....	.....	38 00	....	......	......	15,200 00	....	15,200 00
....	264.00	....	....	....	28 00	....	......	......	7,380 00	....	7,380 00
....	542.00	....	....	... ...	26 00	....	......	......	14,080 00	....	14,080 00
...	2,503.10	....	....	... .	28 94	....	......	.....	72,441 21	....	72,441 21

COUNTY.

....	....	....	97.00	.. ....	....	....	$19 00	......	....	$1,843 00	$1,843 00

TABLES X AND XI

Have reference to accidents in the mines exclusively.

Table X is a record of the names of all injured persons, gives age, conjugal relation, cause and nature of the accident, and the name of operator of mine where accident occurred.

Table XI is a recapitulation of table X, showing total number of fatal and non-fatal accidents, number of wives made widows, children made fatherless, and the kind of employment engaged in by those injured.

TABLE X—SHOWING ACCIDENTS IN LEAD AND ZINC MINES BY COUNTIES FOR THE YEAR ENDING JUNE 30, 1895.

JASPER COUNTY.

Name of employer.	Name of company.	Occupation.	Age	Single	Married..	Non-fatal .	Fatal.	No. of children.	Insured?		Am't of insurance.	Nature of the accident.	Coroner's verdict.
									No.	Yes.			
Burnett, J.	Richland Mining Co.	Ground boss	35	..	1	1	..	..	1	..		Explosion of box caps	
Blackman, J.	McCorkle Hill M. Co.	Miner	30	..	1	..	1	1	..	1	Half wages 1 yr	Premature explosion	No inquest
Brooks, Chas	Hardin Mining Co.	"	28	..	1	1	..	..	1	..		Fall of roof	" "
Brown, S.	Jacobs Bros	"	22	1	..	1	..	..	1	..		Defective brake fell in shaft	
Carlston, Ed	Granby M. & S. Co	"	25	1	..	1	..	..	..	1	$208 00	Premature explosion	
Cole, Walter	Centre Creek M Co.	"	21	1	..	..	1	..	1	..		Fall of roof	Crushed by falling earth
Cooper, Thomas	Eleventh Hour M. Co.	"	23	..	1	1	..	..	1	..		Fall of tools in shaft	
Corbin, H. B.	Victor Mining Co	"	25	1	..	..	1	..	..	1	273 00	Fall of roof	No inquest
Cowan, J.	Perry mine	Ground boss	37	..	1	1	..	2	1	..		"	
Eagles, Chas	Minnie F mine	Engineer	38	..	1	1	..	4	..	..		Caught in machinery	
Edwards, Capt	Margerrum Mining Co	Sup't	50	..	1	1	..	4	1	..		Fall of tub—hit on head	
Glines, Henry	Ihising mine	Miner	35	..	1	..	1	3	..	1	100 00	Defective timbering	Ground-boss—negligence
Good, Chas	Homestead Mining Co	"	23	1	..	1	..	..	1	..	½ wags, Dr. bill	Fall of roof	
*Hardman, A. L.	McCorkle Hill Mining Co.	"	32	..	1	1	..	..	..	1		Exploded cap	No inquest
Hughes, Walter	Rex Mining Co.	Foreman	25	1	..	..	1	..	1	..		Thawing dynamite	
Johnson, L.	McCorkle Hill M. Co.	Miner	35	..	1	1	..	..	..	1	½ wags, Dr. bill	Premature explosion	Accident—own neglect
LaPoint, D. O.	Empire Zinc Co	"	26	..	1	..	1	2	..	1	2,000 00	Return on shot too soon	Killed by falling earth
Larson, John	Centre Creek M. Co.	"	55	..	1	..	1	2	..	1	600 00	Fall of roof	
McClelland, E. W.	McCorkle Hill M. Co.	Fireman	28	1	..	1	..	..	..	1	½ wags, Dr. bill	Caught in machinery	
Marab, Aug.	Beasley & Harlan	Miner	39	..	1	..	1	3	1	..		Fall of roof	Death from fall of slate
Merrill, Gus	Centre Creek M. Co.	"	35	..	1	..	1	2	1	..		Fall of roof	Death—accidental cave-in
Moore, T.	Richland M. Co	"	43	1	..	1	..	..	1	..		Premature explosion	
Patterson, G	Ground & Irwin	"	30	1	..	1	..	..	1	..		Fell in shaft	
Patrick, J	Richland Mining Co.	"	31	..	1	1	..	..	1	..		Explosion of cap	
Rosencranz, J	Union Mining Co	"	15	..	1	1	..	..	1	..		Rope broke—fell in shaft	
Simpson, Marion	Centre Creek M. Co.	Engineer	43	..	1	1	..	3	1	..		Dumpping tub	
Smith, Andrew	Granby M. & S. Co.	Miner	35	1	..	1	..	..	1	..		Fall of roof	
Spurlock, J.	McCorkle Hill M. Co	"	15	1	..	1	..	..	1	..	½ wags, Dr. bill	Fell in shaft	
Thompson, W. G	" "	Engineer	25	..	1	1	..	..	..	1		Caught in machinery	
Tuganza, J. R.	Granby M. & S. Co.	Miner	47	..	1	1	..	6	1	..		Fell through platform	
Truxall, Dennis	Centre Creek M. Co.	"	23	1	..	..	1	..	1	..		Fall of roof	Crushed by falling earth
Van Pelt, Geo	" "	"	35	..	1	1	..	..	1	..		Rope broke—fell in shaft	
*Graham, T	Rex Mining Co.	"	35	..	1	1	..	2	1	..		Fall of roof	
Zenor, G.	Hardin & Co.	"	40	..	1	1	..	3	1	..		Failed to hear warning	
Totals			..	13	21	24	10	37	23	10			

ACCIDENTS BY COUNTIES—Continued.

LAWRENCE COUNTY.

Name of employer.	Name of company.	Occupation.	Age.	Single	Married	Non-fatal	Fatal.	No. of children.	Insured? No.	Insured? Yes.	Am't of insurance	Nature of accident.	Coroner's verdict.
Brooks, M	Schmook Land	Miner	29	..	1	..	1	3	..	1	½ yr w'gs $352.12	Fell in shaft	Death—falling in shaft
Johnson, John	Terre Haute L. & M. Co	"	30	1	..	1	..	..	1	..		Fall of roof	
Mathey, C C	Rogers Zinc Co	"	30	..	1	1	..	2	..	..	Half wages	Fell in shaft	
Roussan, T	Cleveland & Aurora M. Co.	"	29	..	1	..	1	1	1	..		Premature explosion	Accid'nt'l death own hands
Stephens, H.	Hallenbeck & Co.	Ground boss	22	1	..	..	1	..	..	1	Half yr's wages	Fell in shaft	Death—accident; no blame
Thomas, Chas	Mt. Vernon Mining Co	Miner	24	1	..	..	1	..	..	1	" "	Fall of roof	No inquest
Trigg, Wm	Terre Haute L. & M. Co	Boss	31	..	1	1	..	..	1	..		" "	
Totals	..		..	3	4	3	4	6	3	3			

NEWTON COUNTY.

Name of employer.	Name of company.	Occupation.	Age.	Single	Married	Non-fatal	Fatal.	No. of children.	Insured? No.	Insured? Yes.	Am't of insurance	Nature of accident.	Coroner's verdict.
Patterson, Lee (col'd)	Granby M. & S. Co	Miner	55	..	1	..	1	7	1	..		Fall of roof	No inquest

MADISON COUNTY.

Name of employer.	Name of company.	Occupation.	Age.	Single	Married	Non-fatal	Fatal.	No. of children.	Insured? No.	Insured? Yes.	Am't of insurance	Nature of accident.	Coroner's verdict.
Lawson, Geo	Mine LaMotte	Miner	32	..	1	1	.	3	1	..		Jumping from cage	
Williams, Jas	"	"	24	1	..	..	1	..	1	..		Powder explosion	Accidental death
Woods, Jas. H	"	"	30	..	1	1	..	2	1	..		Struck by awkward helper	
Totals			..	1	2	2	1	5	3	..			

ST. FRANCOIS COUNTY.

Beemer, Wm	Central Lead Co.	Miner	35	..	1	..	1	6	..	1	$2,000 00	Premature explosion	No inquest
Blum, Oscar	Desloge C. L. Co	"	21	1	..	..	1	..	1	..		Fall of roof	Neglect to remove loose rk
Dean, Thos	Doe Run L. Co.	"	33	..	1	..	1	4	1	..		" "	Unavoidable accident
DeClue, R	" "	"	35	..	1	..	1	7	1	..		" "	" "
Johnson, Andy	" "	Car loader	30	..	1	1	..	1	1	..		Caught by cage	
Livear, B	" "	Miner	24	..	1	..	1	1	1	..		Fall of roof	Unavoidable accident
Marlar, S	St Joseph L. Co	"	38	..	1	1	..	4	1	..		Rock falling in shaft	
Plmberty, R.	Doe Run L. Co.	"	23	..	1	..	1	1	1	..		Fall of roof	Unavoidable accident
Vandevier	St. Joseph L. Co.	"	19	1	..	1	..	..	1	..		Rock falling in shaft	
Weddell, E	Doe Run L. Co.	Pump man	21	1	..	..	1	..	..	1	100 00	Caught by cage	No inquest
Totals			..	3	7	3	7	24	8	2			

ACCIDENTS IN LEAD AND ZINC MINES.

The number of accidents for the year ending June 30, 1895, is in excess of the recorded number of the year previous.

This year furnishes a total of 55 accidents, of which 23 were fatal and 32 non-fatal. The year previous furnished a total of 46, of which 17 were fatal and 29 non-fatal.

The increased number of accidents this year, is in part, due to an increased production of ore, and the larger number of men employed. The chief cause of increase this year is, we think, the result of greater watchfulness and care in collecting these statistics, than heretofore exercised in the matter. Experience leads us to the conclusion that the increase is not in reality as great as our figures indicate, as we have every reason to believe that accidents have not been fully reported in the past.

In confirmation of above conclusions, my predecessor, Mr. Woodson, in his report for 1892, page 245, states: "The fact is that in a great majority of the cases herein reported, no report was sent us as is required of mine operators under the laws of this State." We have been compelled to seek our information from outside sources, and from a careful scrutiny of the newspapers of certain sections of the State.

In my letter transmitting my report for 1893, I had the following reference to accidents: "The number of accidents will be found very small in proportion to the number of men employed. It, in fact, includes only those reported voluntarily. Not being in office at all during the year for which this report is made, I could not secure more information."

Again, in my report for last year, page 265, I called attention to this subject as follows:

While this table is to the best of my knowledge correct, it is very probable that a number, especially non-fatal accidents are unreported. One reason for this is, the fact that the most of the mining, especially in the Southwest, is done by sub-lessees, and when an accident happens to a man in a mine so operated, the mine-owner seldom hears of it, and consequently no report is made to me.

From the above it will be noticed that the results attained in securing statistics relative to fatalities in lead and zinc mines, have been arrived at under difficulties and with an element of uncertainty as to correctness associated with all former years.

The following table shows the number of tons of ore mined for each life lost during the past five years, based upon the records arrived at under the circumstances as above described:

For the year 1891 there were 11,723 tons mined for each life lost.
" " 1892 " 10,061 " " "
" " 1893 " 8,758 " " "
" " 1894 " 8,303 " " "
" " 1895 " 7.083 " " "

To all appearances, the above figures indicate a great increase each succeeding year in the fatalities attending the production of lead and zinc ores. Yet, how is it possible to reconcile them with the notorious fact that many more safeguards are thrown around the miner today than was ever before dreamed of; that the mines are in better working condition and supplied with many new appliances, having for their object the comfort and better protection of employees; that the operators, aside from humane considerations and from a purely business standpoint, more than ever provide against accidents to avoid expense, litigation and serious delays. I am fully convinced that the increased fatatilies are due solely to the causes mentioned. Being satisfied that there had been an indifference in reporting accidents, and knowing that operators were averse to giving prominence to accidents, under the impression that in making a report it might reflect on the mine or its management. I determined that nothing would be left undone this year to secure a correct report on accidents. To this end every operator was furnished blanks and requested to make report of any and all accidents occurring during the year. Newspaper account of accidents were looked after and the same followed up until a report was forthcoming. In a large number of instances personal application was made for them and inquiries instituted at all mines to discover, if possible, if any accident had occurred of which we had no record. I think we got them all and feel confident that this fact accounts for the increase.

The following table shows cause of the various accidents with the percentage due to each:

Falls of roof	38 %
Falling in shafts	12¾%
Premature explosions	12¾%
Caught in machinery	11 %
Fall of material in shaft	9 %
Explosion of caps	5 %
Other causes	11½%

is covered by accidents from shots holding fire; defective machinery and timbering; thawing dynamite and accidentally striking fellow laborer by a hammer.

There is, however, a gratifying feature connected with this year's table of accidents, and that is the largely increased number of men insured, compared with all former experience.

In this connection we desire to commend the action of the Doe Run Lead Co. in its treatment of the families of the four men killed in its mine June 6, 1895.

From a personal examination of the mine and the causes leading to the accident made immediately after the sad occurrence, I am clearly of the opinion that the accident was unavoidable, so far as human foresight is concerned. I regard the action of the company in its treatment of the families of the deceased as business-like, wise, prudent, and above all, most generous and humane.

The following letter from Mr. Graves, Ass't Supt., fully explains itself:

DOE RUN, MO., Sept. 30, 1895.

MR. FRANCIS A. LAGRAVE, State Mine Inspector, Jefferson City, Mo.:

DEAR SIR—Referring to the accident, which occurred in June last at our Flat River shaft, which resulted in the death of four of miners, I wish to make a report of our action in the matter of settlement of the claims for damages arising out of the same. As you were promptly on hand, and personally investigated the case, and are fully acquainted with all the facts, it is needless to refer to the details. Our company, from a legal standpoint, felt that no just claims could exist, and by the evidence, and the verdict rendered by the coroner's jury, felt fully exonerated. But we felt nevertheless, that something should be done for the immediate relief of the striken families, and we promptly made arrangements for the care of each family to the amount of the husband's earnings, same to continue two months, and until a definite understanding was reached. In the meantime (as we fully anticipated), numberless letters, of legal advice and sympathy from attorneys in various towns, were received by each of the families, urging suits against our company, and promising all sorts of results. We felt that we would much rather pay what money would be expended in litigation directly to these families than to the lawyers.

After the parties had had sufficient time to consider, we made them each an offer of $500 in cash, and provide a house and lot, free of rent. These houses to be built at Flat river. This proposition, including the wages allowed, amounted to something over $1000 each, and was accepted by Mrs. Thos. Dean and Mrs. Richard Declue, two of the widows, and who will be enabled to make their support by keeping boarders. The other two families, not being in need of houses, (some having been provided by their relatives), requested a payment of $500 cash instead. We therefore, paid these widows $1000 each.

We believe, that these unfortunate families are thus placed in much better circumstances, that they would be, had they listened to the advice of their numerous legal friends, who were so anxious to help them recover damages. And we have the satisfaction of knowing that this amount of money goes directly to the relief and benefit of the widows and orphans of the unfortunate men who lost their lives while in our employ.

Trusting our action in this matter has your approval.

We are very truly yours,

THE DOE RUN LEAD CO.

By F. P. GRAVES, Secretary and Ass't Supt.

JASPER COUNTY.

Henry Glines, a miner employed by A. O. Ihlsing & Co., was killed July 20, 1894, by falling timber. Lower round of cribbing being loosend by the seepage of water, it was allowed to project into the shaft and was caught by a tub that was being hoisted and pulled out, falling in on the deceased, killing him instantly. Coroner censures the ground boss for negligence. Deceased was 35 years of age, had a wife and three children.

Jeff. Bennett, ground boss, engaged by L. O. Beasley & Co., was seriously injured September 27, 1894, by the explosion of a box of caps. Two miners were preparing a shot when one of them allowed a spark of fire and hot grease to fall into the open box of caps. This was the rankest kind of carelessness on the part of the miners.

At same time and from same cause, Jack Patrick, the miner who allowed the spark and hot grease to drop in the box of caps, sustained the loss of his left arm and right eye.

Marion Simpson, engineer for Beasley & Co., was severely hurt October 9, 1894, in dumping a tub, his hand being crushed.

Gus Merrill, a miner employed by G. W. Beasley & Co., was killed December 3, 1894, by a fall of roof. Merrill and Reeder were fixing the track when two or three tubs of dirt and rock fell from the roof, a distance of sixty feet, crushing the life out of Merrill and bruising up Reeder. Merrill was stooping over and caught a large portion of the falling rock on his back and head and lived only a few minutes after being hoisted out of the shaft. Reeder ran a narrow escape, but came out worse scared than hurt. Merrill was about 35 years old, and resided with his family, a wife and three children. He was an Odd Fellow and carried a $2000 policy on his life.

Coroner's verdict: "Came to his death from accidental caving of dirt which struck him."

Augustus Marah, a miner employed by Beasley & Harlan, was killed December 3, 1894, by a fall of roof. The deceased, with two others, were engaged fixing a track, his companions heard the slate break and ran away, but from causes unknown, he failed to take the warning.

Coroner's verdict: "The deceased came to his death by slate falling from the side of drift."

Deceased was married, 39 years old, and left a wife and three children.

Walter Cole, Daniel Troxwell, John Larson.

The above miners, employed by the Center Creek Mining Co., were instantly killed December 5, 1895, by a fall of roof. It appears that a shift composed of eight men had been at work during the day taking up a stope, and at night the shift returned half-hour earlier than usual to complete some work, and shortly after entering the drift one of the men named Burnside called to his companions that the timbers were giving away. There were eight men in the ground and all escaped to the shaft but three, who were buried under tons of falling dirt almost before the warning words were out of Burnside's mouth. The dead men are Walter Cole, single and 21 years of age; Dan Troxwell, single and 20 years old, and John Larson, a married man, 44 years old. Two of the men were at once hoisted to the surface and reported the accident and a rescuing party was engaged for twelve hours in recovering the bodies, which were all horribly mangled.

The ground on Sucker Flat is all soft and requires to be heavily timbered, and at the shaft where the accident occurred the timber used was particularly heavy, and it was supposed that every precaution against accidents had been taken, but the result shows that even the most experienced miners cannot guard at all times against the dangers to which men are exposed in that ground.

Mr. Larson carried $600 insurance. The coroner's verdict was: "Crushed to death by falling earth." The verdict, from all that we can gather, does not agree altogether with the facts, as it appears that the direct cause was due to the giving way of timbers.

H. B. Corbin, a miner employed by the Victor Mining Co., was instantly killed December 22, 1894, while raking some dirt down on the platform for the shovelers. He was struck on the head by a small amount of dirt, which fell from the roof a distance of 60 feet. The deceased was 28 years of age, a widower and had an insurance of $273. and his funeral expenses.

George Vanpelt, a miner working for Harrison & Mills, was injured January 21, 1895, by the breaking of a rope which caused him to fall some 10 feet or more, cutting his scalp.

E. W. McClelland, a fireman employed by McCorkle Hill Mining ., was injured January 28, 1895, by being caught in belt while throw- same off pulley. Insurance, half wages and doctor's bill.

A. L. Hardman, a miner employed by McCorkle Mining Co., had his hand badly lacerated January 29, 1895. He picked up a fuse which he supposed had been used and held it over a lamp to soften the tar to stick a wrapping on his hammer handle, but the fuse had not only not been used, but it had a cap in the end of it which exploded. Insurance, half wages and doctor bill.

Walter Hughes, one of the operators of the Red Cross Mining Co., was killed February 5, 1895, by an explosion of dynamite. The deceased, it appears, was acting as engineer and hoisterman, and some dynamite, which was to be sent down the shaft, was found to be frozen, and to thaw it out preparatory to sending it below, it is supposed that he placed it too near the door of the boiler furnace; becoming overheated, it exploded with terrific force, blowing deceased into the shaft where he fell 75 feet into the sump below. He was hoisted to the top, where it was found that both legs were broken below the knees, his skull fractured, his eyes blown out and his face and body terribly lacerated. He remained concious for quite a while and begged most pitiously for some one to kill him at once. Miners, unfortunately, in handling explosives every day become careless.

J. Blackman, a miner and working for the McCorkle Hill Mining Co., was fatally injured February 28, 1895, and died several days after the accident. Deceased, it appears, was engaged in tamping a hole, when an explosion took place. He was 30 years of age and left a wife and one child. Had insurance amounting to half year's wages. No inquest.

S. Johnson, a miner employed by McCorkle Hill Mining Co., received a severe scalp wound at the same time and from same explosion that caused the death of the above named. Insured for half wages during his layoff.

D. O. La Point, a miner employed by the Empire Zinc Co., was killed April 15, 1895, by a blast. It seems that the deceased put in four shots, of which three went off, and as the fourth did not fire, he went back to look after it, when it exploded, blowing off his head. Deceased was 26 years of age; left a wife and two children. Had insurance in the A. O. U. W. for $2000.

Coroner's verdict: "Accident through own neglect."

Charles Brooks, a miner working for the Hardin Mining Co., was killed June 7, 1895, by a fall of roof. No inquest was held, he having lived several days after the accident. Deceased was 28 years of age. He left a wife and one child.

Chas. Eagles, an engineer employed at the Minnie F. Mine, was injured quite seriously June 10, 1895, in attempting to throw pulley belt—both legs were broken.

T. J. Moore, a miner employed by the Richland Mining Co., was seriously injured June 13, 1895, by a blast. He loaded three shots, and two of them went off all right, and on returning to extract the fuse from the third, it exploded.

S. Brown, a miner working for Jacobs Bros., was badly injured June 17, 1895, by falling down a shaft. Mr. Brown, on account of a defective brake, was dropped about 90 feet down a shaft. Five feet of water in the sump saved him from being killed.

Edward Carlston, a miner employed by the Granby M. & S. Co., was seriously injured June 27, 1895, by a blast. He had two shots, one of which fired all right, and he went back to see about the other, and while stooping over it to examine, the explosion occurred. His face and breast was badly injured, and one eye shot out.

He had an insurance of $208.

LAWRENCE COUNTY.

Marshall Brooks, a miner employed by Wheat & Lay, was killed March 2, 1895, by falling down shaft. Deceased, after a night's work in the mine, was hoisted to the surface, on getting out of the tub he seems to have missed his footing and fell down the shaft, a distance of 100 feet, breaking his neck, arms and legs. He left a wife and three children. Was insured for $352.

Coroner's verdict: "Death by mortal wound in falling down shaft."

Henry Stephens, ground boss, working at the mine of E. Hellenbeck & Co., was killed April 29, 1895, by falling down shaft. Deceased was suspended in the shaft on a sling repairing the cribbing, and it is supposed that in reaching for a piece of timber he lost, his balance, falling to the bottom, a distance of 140 feet. He fell into 10 feet of water and was drowned as not a bruse was found on his body. Had insurance amounting to half a year's wages.

Coroner's verdict: "Death by accident."

John Johnson, a laborer employed by George McGregor, and the Terre Haute L. & M. Co's. land, was injured April 25, 1895, by a fall of roof. A large boulder rolled on him and he was held fast until it was raised by the aid of fifteen men, when he got up and walked away.

Ted Roussau, laborer, employed by Peak & Burley, on the Cleveland and Aurora land, was killed May 30, 1895, by an explosion of dynamite. Deceased was preparing for a shot, having twenty sticks of dynamite at his side and a box of caps, a spark from his lamp fell into the box of caps exploding caps and powder. His left leg, the flesh from both arms and both eyes were destroyed. Deceased left a wife and one child.

Coroner's verdict: "Accidental death."

C. C. Mathey, a miner employed by the Rogers Zinc Co., was injured June 3, 1895, by fall from a temporary platform, breaking his collar-bone. Had insurance amounting to half wages.

Wm. Twigg, ground boss, employed by George McGregor, was painfully injured by a fall of roof. Left arm was broken and a scalp wound.

Chas. Thomas, a miner employed by the Mt. Vernon Mining Co., was killed by a fall of roof. Deceased, it appears, was killed instantly by fall of a boulder from the roof. He was 24 years of age. Had insurance equivalent to a half year's wages. No inquest.

NEWTON COUNTY.

Lee Patterson (colored), a miner employed by the Granby M. & S. Co., was killed December 1, 1894, by a fall of rock. Deceased cut too far, leaving roof without support. He left a wife and seven children. No inquest.

MADISON COUNTY.

James Williams, a miner at work at Mine LaMotte, was killed August 30, 1895, by a blast. Deceased was prospecting on his own account. He drilled into an old hole, which had missed fire; old charge exploded, killing him instantly.

Coroner's verdict: "Accidental death."

Geo. W. Lawson, a miner employed at Mine LaMotte, was injured September 20, 1894, by jumping off a cage before it was stopped, contrary to orders. His left leg was broken in two places.

John H. Wood, miner employed at Mine LaMotte, was injured December 21, 1894, by a fellow workman knocking chip out of bone of left arm.

ST. FRANCOIS COUNTY.

Wm. Beamer, a miner at work for the Central Lead Co. was killed September 9, 1894, by a fall of loose rock. Deceased returned after a blast, and a piece of rock loosened by this blast fell on him. No inquest held, as the deceased lived for a week after being injured. He left a wife and six children. He was insured for $2000.

Andy Johnson, a car-loader employed at the mines of the Doe Run Lead Co., was slightly injured December 1894, by cage striking him, caused by a misunderstanding as to signal.

Edward Weddle, a pumpman at work in the mines of the Doe Run Lead Co. was fatally injured January 2, 1895, by decending cage. Deceased was employed to attend to pump, situated some distance from cage landing, left his post of duty, and was talking to the cager, was warned to get out of the way before being struck. He admitted his carelessness. He was moved to the Bonne Terre hospital, and for a time, seemed to improve, but finally died from the effects of accident and other complications. The company furnished all medical and funeral expenses, amounting to $150. Deceased's mother being in needy circumstances, she was voluntarily given $300.

Thos. Dean,
Richard Declue.
Robert Pimberty.
Bart Liverar.

Employees of the Doe Run Lead Co,, were all four killed June 6, 1895, by a fall of roof. Liverar and Declue were killed instantly, Pimberty lived for four hours, and Dean four days. The roof where the accident occurred indicated trouble and examinations made. Holes were drilled in the roof to relieve the pressure of water in the roof, and in fact, the parties killed were engaged in protecting the roof when it fell. No blame it would appear can be attached to any one concerned as it was due to unforseen troubles.

Coroner's verdict: "Unavoidable accident."

Thos. Dean, left wife and five children.

Richard Declue, left wife and seven children.

Robert Pimberty, left wife and one child.

Bart Liverar, left wife and one child.

Stephen Marlar and Robt. Vandervier, miners employed by the St. Joseph Lead Co., were injured February by rock falling in shaft.

Oscar Blum, miner employed by Desloge Cansolidated Lead Co., was killed March 13, 1895, by the fall of a stone which is supposed to have fallen from a ledge on the side of the stope, some 40 or 50 feet above him.

Coroner's verdict: "Falling rock; neglect to remove loose rock."

TABLE XI—RECAPITULATION OF ACCIDENTS IN LEAD AND ZINC MINES, YEAR ENDING JUNE 30, 1895.

Number of non-fatal accidents	32
Number of fatal accidents	23
Total number of accidents	55
Number of single men fatally injured	9
Number of married men fatally injured	14
Total fatally injured	23
Number of single men non-fatally injured	11
Number of married men non-fatally injured	21
Total non-fatally injured	32
Number of wives made widows	14
Number of children made fatherless	43
Number of injured men carrying insurance	16

Accidents—How caused.

From falling roof	21
falling in shaft	7
premature explosions	7
being caught in machinery	6
fall of material in shaft	5
explosion of caps	3
shots hanging fire	2
defective machinery	1
defective timbering	1
thawing dynamite	1
being struck accidentally by helper	1
Total number of men injured	55

How injured men were employed.

Operator		1
~~Superintendent~~	~~1~~	
Ground bosses	~~1~~	1
~~Cagemen~~	~~1~~	
~~Engineers~~	~~2~~	
~~Firemen~~	~~1~~	
~~Pumpman~~ Watchman	~~1~~	1
~~Car-loader~~ Laborer	1	3
Miners	~~48~~	26
Total	~~55~~	32

MINING RULES

OF THE

MINOR & ROGERS LAND

OF AURORA, MISSOURI.

Notice is hereby given, in accordance with the provisions of chapter No. 115 of the Revised Statutes of the State of Missouri of 1889, on "Mines and mining," that the undersigned have made and do hereby make and publish the following statement of the terms, conditions and requirements upon which the following mining lands, owned, leased and controlled by them, may be prospected and mined, said land being the east half of the northwest quarter of section eight (8) in township twenty-six (26), range twenty-five (25), situated in Lawrence county, Mo.:

Rule 1. Any person desiring to mine on said land shall first obtain the consent of the superintendent, which being obtained, he shall sign his name on the company's register, opposite the number of lot upon which he proposes to mine, which will subject him to the rules herein contained. The right to mine upon any lot shall commence from the of date such signature.

Rule 2. Parties mining on any lot or lots, agree to work the same faithfully and continuously in a good, workmanlike manner, and to be guided by the instructions of the superintendent, and agree that a shaft shall be sunk on each lot held by them under lease. In all cases where the superintendent requires it, a permanent ladder shall be put in from top of shaft to the bottom, and kept in good repair so there will be no danger for men climbing up or down. And should they fail to work the same three days in each calender week or violate any of the provisions of these rules, without written permission from this company, the same shall work a forfeiture of any and all rights and claims to said lot or lots, and the company may enter and take possession without any previous demand, notice or legal proceedings whatsoever, and may use all necessary force to do so. It is agreed that neither the company, its officers, agents or employes shall in any manner be liable in damages for any such force used.

Rule 3. No sub-leasing or renting of lots will be allowed without written consent of the company. No transfer of lots or mining claims or rights will be recognized by the company unless the parties purchasing or acquiring such lots, claims or rights have received permission from said company to mine such lots or claims.

Rule 4. All shafts or drifts must be held up in good shape, and where timbers are required they must be put in in good workmanlike manner, and extraordinary size drifts must not be cut until approved by the superintendent of the company, who will have the right to enter at any time and inspect any mine on the company's lands, and stop the work of any parties who are not mining in a safe and workmanlike manner and are not keeping their ground in a safe condition, for the proper holding up of the lands.

RULE 5. All ores must be cleaned in first-class order, and they must be cleaned and made ready for market on the lands of the company.

RULE 6. The company reserves the right to use the surface of said lands, in erecting wash places, tram-ways, spouting or machinery of any kind, or to make any improvements for the benefit of said land. No parties other than the company or parties authorized by it, are to use such surface other than for mining purposes. Persons mining said lots shall only acquire a mining right on said land.

RULE 7. The royalty paid the company on all mineral taken from their land shall be twenty-five per cent, but until there is a pump or pumps in operation on such tracts by the company or some one authorized by the company, a rebate of ten per cent on zinc ore and five per cent on lead will be allowed from the above royalty.

RULE 8. Miners will be allowed to receive bids for ore from responsible buyers that are authorized to purchase of the company's lands; the company reserving the right to keep the ores at the highest bid, provided in all cases all ores must be weighed on the company scale or scales designated by the company, and payment made to the company, who will settle with the miners, first deducting the royalty as above provided, and any claims the company has for advances made or supplies furnished.

RULE 9. Water in a shaft will hold a lot only at the option of the company.

RULE 10. No property right shall be acquired by any miner to any ore on or in said land, except the price or value of mining and cleaning the same.

RULE 11. No rock, sand, gravel, chats or wash dirt shall be removed from these lands without permission of the company.

RULE 12. All leases under these rules expire January 1, 1900.

MINOR & ROGERS, Owners.

NAME OF MINE OR OWNER, OPERATOR, POSTOFFICE ADDRESS, AND LOCATION OF MINE.

FRANKLIN COUNTY.

Name of mine or owner.	Operator.	Postoffice address.	Mine located at or near
Bartle, J. H.	J. H. Bartle	St. Clair	St. Clair

GREENE COUNTY.

Bowyer mine	R. F. Bowyer.	Springfield	Springfield
Suffock Lead & Zinc Co.	W. B. Farrer, manager	Mumford	“

JASPER COUNTY.

American Mining Co.	C. E. Beach, secretary	Kansas City	Sherwood
A. B. P. Mining Co.	F. L. Yale, manager	Joplin	Joplin
Alba Mining Co.	Geo. Dennison, president	Alba	Alba
Blende Mining Co	W. B. Jeffrey	Joplin	Joplin
Becky Scharp Mining Co.	A. F. Donnau	“	“
Beckwith-Hall Mining Co.	Byron A. Ash	Carthage	“
Cave Springs Mining Co	W. E. Brinkerhoff, president	Joplin	“
Center Creek Mining Co	W. C. Stewart, treasurer	Webb City	Webb City
Chatham Mining Co.	Jas. Smith, vice-president	“	“
Clover Leaf Mining Co.	E. M. Murray	Joplin	Joplin
Cottonwood Mining Co.	C. W. Guengerich.	“	“
Daugherty & Davy.	W. A. Daugherty, secretary	Carterville	Carterville
Daugherty, Davy & Daugherty	“ “ “	“	“
Davey, Tower & Co.	Paul N. Davy, “	“	“
Denwig Mining Co.	J. A. Hardy, superintendent	Webb City	Webb City
Eleventh Hour Mining Co.	J. S. Thombs, “	“	Carterville
Edgar mine	Geo. W. Warns, agent	Carterville	“
Germania Mining Co.	Guy S. Farwell, superintendent	Joplin	Joplin

Granby M. & S. Co	Jno. P. Neville, president	St. Louis	Joplin and Oronogo
Ground & Erwin	Ground & Erwin	Carthage	Webb City
Hardin Mining Co	M. H Hardin	Carterville	"
Harrison & James	Wm. Leekie (owner)	Joplin	Joplin
Hatfield & Lawrence	F. L. Yale, superintendent	"	"
Homestead Z & L. Co	Geo. W. Warns, agent	Carterville	Carterville
Herold Mining Co	Roland Quintin, secretary	St. Louis	"
Ihlsing mine	A. O. Ihlsing	Carthage	Carthage
Indiana & Missouri Mining Co	J. C. Dingle, superintendent	Joplin	Joplin
Jacob Bros	C. O Frye, "	"	"
Lewis mine	J. F. Lewis	Webb City	Webb City
Lichliter & Lear	N. B. Lichliter	Joplin	Joplin
Mahaska Mining Co	W. B. Jeffrey	"	Blendeville
Margerum Mining Co	Jno. Dermott, secretary	Webb City	Oronogo
Moonshine Mining Co	W. S Paul, "	Joplin	Joplin
Moffet & Watkins	Moffet & Watkins	"	"
Mound City Mining Co	Louis Helm, manager	Webb City	Carterville
McCorkle Hill Mining Co	C. S. Hepburn, superintendent	"	Webb City
O'Keefe mine	J. B. Guinne, superintendent	Joplin	Joplin
Perry mine	E. J. Tutty, "	"	Carterville
Rex Mining Co	E. D. Porter, president	"	Joplin
Richland Mining Co	J. M. Waugh, superintendent	Webb City	Carterville
Reed Mining Co	C. W. Reed	Joplin	Joplin
Roach, Jas & Co	Jas. Roach	"	"
Royal Blue Mining Co	W. C. Hering, superintendent	Webb City	Oronogo
Scotia Mining Co	H. H. Gregg	Joplin	Joplin
South Joplin Lead & Zinc Co	M. M. Hinton, superintendent	"	"
Swartz mine	P. L. Swartz	"	"
Sixteen to One Mining Co	T. J. Shelton, superintendent	Webb City	Webb City
The Empire Zinc Co	W. C. Witherall, manager	Joplin	Joplin
The Get There Mining Co	Jas. O'Neil, "	Webb City	Carterville
Taylor, Jno H.. land	J. B. Glover, agent	Joplin	Joplin
Taylor L. & M Co	" "	"	"
Tenderfoot mine	Fred Hills	Webb City	Carterville
Tower, Davey & Co	P. M. Davy, manager	Carterville	"
Troupe Mining Co	S. H. Cobb, "	Webb City	"
Victor Mining Co	Thos. R. Cobb, secretary	"	"
West Joplin Mining Co	D. L. Brewster, vice-president	Jolpin	Joplin
Western Zinc Co	Daniel Dwyer, manager	"	"
Wright Mining Co	Frank L. Yale, "	"	"

NAME OF MINE, LOCATION, ETC.—Continued.

LAWRENCE COUNTY.

Name of mine or owner.	Operator.	Postoffice address.	Mine located at or near
Berry, Franklin	B. A. Berry, superintendent	Aurora	Aurora
Blackland Mining Co	Jacob Thielen, "	"	"
Brinkerhoff Zinc Co	F. H. Brinkerhoff, president	"	"
Campbell & Co	Paul Schmook, superintendent	"	"
Cleveland & Aurora M. & L. Co	C. F. Johnson, "	"	"
Dayton Mining Co	C. M. Dayton, "	"	"
Decatur Lead & Zinc Co	Geo. Van Riper, "	"	"
Elliot mine	S. G. Elliott, "	"	"
Hallenbeck, E. & Co.	W. G. Craig, Jr., "	Forest Home	Forest Home
Kentucky Mining Co	Geo. Van Riper, "	Aurora	Aurora
Leonard, Newman & Falk	Jacob Philen, "	"	"
Liles land	T. J. Liles, "	"	"
Mt. Vernon Mining Co	J. B. Davis, "	Mt. Vernon	Mt. Vernon
Rinker Lead & Zinc Co	S. H. Miner, "	Aurora	Aurora
Rinker land	Geo. W. Rinker, "	"	"
Pfau land	W. M. Johnson, "	"	"
Schmook land	Paul Schmook, "	"	"
Terre Haute Lead & Zinc Co	" "	"	"
Union Lead & Zinc Co	L. W. Hubbell, "	"	"

MADISON COUNTY.

Mine La Motte	J. D. Sanders, superintendent	Mine La Motte	Fredericktown

NEWTON COUNTY.

Granby Mining & S. Co.	John P. Neville, president.	St. Louis	Granby
Gobler mine	C. Gross, superintendent	Wentworth	Wentworth
Little Nugget Mining Co.	Geo. A. Purdy, "	"	"
Saginaw Lead & Zinc Co.	J. Reinmiller, "	Saginaw	Saginaw
Spring City Mining Co	J. W. Allen, "	Spring City	Spring City
Roaring Springs Lead & Zinc Co.	D. C. Hoover, "	Joplin	Gregg.

WASHINGTON COUNTY.

Cyclone mine		Richwoods	Richwoods
Long, James	James Long	Potosi	Potosi
Long, William	Wm Long	"	"
McArthur. A. P	Hugh McGregor	"	"
Palmer Lead Co.	T. F. Blount, superintendent	Palmer	Palmer
Shibboleth Lead Co.	J. B. Lathey, "	Cadet	Cadet
Union Mining & Smelting Co.	Alex. Harrison, "	Old Mines	Old Mines
White, Mrs. J. L		"	"
Higginbotham mines	Z. F. Higginbotham	Fertile	Fertile

WRIGHT COUNTY.

Dodson Lead & Zinc Co.	G. J. Roote, superintendent	Mansfield	Mansfield

ST. FRANCOIS COUNTY.

Central Lead Co	Arthur Thatcher, superintendent	Elvins	Flat River
Desloge Consolidated Lead Co	J. M. Desloge, "	Desloge	Deslodge
Doe Run Lead Co.	F. P. Gravis, "	Doe Run	Doe Run
Leadington Lead Co	S. P. Reynolds, "	Leadington	Leadington
St. Joseph Lead Co.	C. B. Parsons, "	Bonne Terre	Bonne Terre
The Flat River Lead Co.	Wm. R. Taylor, "	Farmington	Flat River

GLOSSARY

OF MINING TERMS USED IN MISSOURI IN MINING AND SMELTIMG LEAD AND ZINC ORES.

Air-furnace—A reverberatory furnace used to smelt lead in.

Air pipe—A pipe made of canvas, or a wooden box, used in conveying ventilation to the workmen.

Air-way—Any passage used for the passage of the air current.

Belgian zinc furnace—A furnace for the production of zinc in which the calcined ore is distilled in tubular retorts.

Black damp—Choke damp; carbonic acid gas (Co_2), often found in the bottom of shafts and old unventilated workings. It will not support combustion.

Black-jack—Zinc blende.

Blow-fan—A small centrifugal fan used to force air through canvas pipes or wooden boxes to the workmen.

Blown-out shot—When a blast blows out the tamping without bringing down the ore, it is said to be a blown-out shot.

Bottom—The landing at the bottom of the shaft or slope; the floor; the bottom rock or stratum underlying the ore deposit.

Breast—The heading from which the ore is mined.

Bucking ore—Hand process of crushing ores which do not occur free.

Calamine—Zinc silicate—carrying 52 per cent of zinc when pure.

Calcine furnace—A furnace used for roasting ore in order to drive off certain impurities.

Cave, or cave-in—After the ore has been excavated the overlying roof gives way and falls, and is called a cave-in.

Chats—(1) The gravel like tailings derived from the concentration of ores. (2) A low-grade ore, often too poor to handle; the refuse from concentration works.

Charge—The amount of materials added to the furnace at one time.

Chert—A siliceous rock—often the gangue of lead and zinc.

Cribbing—Timbering a shaft with crib-work; commonly extends from the surface down to the bed-rock.

Concentrating plant—A complete plant for cleaning and preparing the ore for market, consisting of crushers, rolls and jigs.

Crop, or out crop—Indications of an ore deposit sometimes observed upon the surface.

Crusher—A machine used for crushing ores and rock.

Cotton rock—(1) Decomposed chert. (2) A variety of earthy limestone.

Derrick—The structure erected to sink a drill-hole, and the frame work above shafts are sometimes called by this name.

Digging—Mining operations, excavating the ore or earth.

Dip—The angle of inclination of a mineral bed or vein measured from a horizontal line.

Drill—Any tool used for boring or drilling holes in rock or mineral.

Dry bone—Carbonate of lead.

Dump—A pile or heap of ore or waste, rock, etc. (2) The tipple by which the cars or ore-buckets are dumped.

Entry or drift—A water-level heading driven from the surface of bottom of shaft, through which the product is conveyed.

Face, or working face—The place at which work is being done; the ore-bearing stratum.

Flint—Chert rock.

Flintshire furnace—A kind of reverberatory furnace used for smelting lead ores.

Float ore—A term applied by miners to ore found loose in the clay or soil.

Flux—Iron ore, limestone and sand, which are added in various proportions to the charge in a furnace to make the gangue melt up and blow off easily.

Galena—Led sulphide, an ore carrying 86 per cent of lead, when pure.

Hard lead—Lead containing certain impurities, mainly nickel, cobalt, antimony, etc.

Hoister—A machine used in hoisting the product. It may be operated by steam or horse-power.

Jack—Zinc blende.

Jig—A machine used for separating ores from worthless rock by means of their specific gravity.

Legs—Props on which collars in gangways rest.

Lagging—Small round timbers, slabs or planks driven in behind the legs and over collars to prevent pieces of the roof or sides from falling through.

Mill cinder—The slag from the puddling furnace of a rolling mill, used as a flux in lead smelting.

Mill run—The test of a given quantity of ore by actual treatment in a mill.

Matte—A compound of iron and other metals with sulphur, formed during lead smelting, in the slag furnace.

Mine—Any excavation made for the extraction of minerals.

Miner—The term is used to denote the workmen who mine the ore.

Mineral—A local term for galena or lead ore.

Mundic—Iron pyrites; bisulphide of iron.

Open cut—Any surface excavation.

Opening—A fissure or cave is often encountered in mining in the southwestern part of the State, and is locally known by this name.

Output—The mineral product of the mine.

Pebble jack—Zinc blende in small crystals or pebble-like forms that is not attached to rock, but is found in clay openings in the rock.

Percussion table—A kind of jolting table used in separating very fine ores from slimes.

Pillar—A portion of ore left to support the roof.

Plat or map—A map of the surface and under-ground workings, or of either; to draw such a map from surveys.

Poling—The process of purifying lead by stirring it while melted with green poles, and skimming off the dross that rises to the surface.

Post or prop—An upright timber; applied particularly to the timbers used for propping the roof.

Prospect-hole—Any shaft or drift-hole put down for the purpose of prospecting the ground.

Rolls—Machinery for reducing disseminated ores, so the minerals can be separated from the waste.

Roof—The rock or stratum overlying the ore deposit or vein.

Seam—A fissure or joint, either empty or filled with foreign matter. (2) A stratified bed of mineral.

Screen—Any seive, whether coarse or fine mesh or bars, or perforated sheet metal, used for separating minerals into different grades, according to size.

Sheave—A wheel with grooved circumference, over which a rope is turned, either for the transmission of power, or for hoisting.

Scrapper—A local name given to parties who pick up the ore left on dumps.

Shot—A drill-hole charged and fired; injured by a shot.

Silicate—An ore containing about 50 per cent of zinc when pure.

Slime—Silt containing very fine ore, which passes off in the water from the jigs.

Slag—The gangue of the ore with the fluxes which are added in the furnace, and which combine to make a mass that is easily melted, which blows off, leaving the lead or other metal in a free state in the furnace.

Smittem—Fine gravel-like ore, occurring free in mud openings, or derived from the breaking of the ore in blasting.

Smithsonite—Zinc carbonate, carrying 56 per cent of zinc when pure.

Speiss—A compound of arsenic, iron and sulphur added to the charge sometimes to extract the nickel and cobalt in the ore.

Stuff—A common expression among lead and zinc miners when referring to minerals.

String-pump—A system of pumping whereby the motion of the engine is transmitted to the pump by timbers or stringers bolted together.

Stopping—After a heading has been driven, the underlying ore is mined out by stopping.

Tailings—Waste rock, dirt, etc., left after the minerals have been extracted.

Trolley—A small four-wheeled truck used for carrying the ore bucket underground.

Tiff—Calcite, or carbonate of lime.

Tuyere—The tubues through which the air is forced into a furnace.

Tub—Ore bucket used in hoisting.

Wash place—A place where the ores are washed and separated from the waste, usually applied to places where the hand-jigs are used.

Zinc ores—The various ores of zinc may be divided into: (1) The sulphide ores or zinc blende—these are termed "black jack," "rosin jack," "steel jack," etc., from the color. The ore, when pure, carries 67 per cent zinc. (2) The oxodized ores, "calamine," or the silicates of zinc known as "silicate" and "smithsonite;" the carbonate of zinc also generally called silicate. These ores carry about 50 per cent of zinc.

MINING LAWS OF MISSOURI.

CHAPTER 115.

ARTICLE I—Mines and mining.
II—Safety and inspection of mines.

ARTICLE I.

MINES AND MINING.

SECTION

7034. Rights of miners and owners of mining lands—condition of permits.
7035. Forfeiture.
7036. Tender of payment.
7037. Notice to owner or lessee.
7038. Sale of ore.
7039. Injunction or restraining orders—notice of application to dissolve.
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7047. Petition to circuit court—court to fix and approve bond.
7048 Testimony on application—bond, etc.—time granted.
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7050. Written permission of property owner—violation, misdemeanor—penalty, fines, etc.
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SEC. 7034. *Rights of miners and owners of mineral land—condition of permits.*—When any person owning real estate in this state, or any person having a leasehold interest in such real estate for mining purposes by lease from the owner thereof, duly acknowledged and recorded in the county wherein the land lies, shall permit any person or persons, other than their servants, agents or employes, to enter and dig or mine thereon for lead ore or other minerals, with the consent of such owner or owners or lessee, he or they shall keep a printed statement of the terms, conditions and requirements upon which said lands may be mined or prospected, and the time during which the right to mine or prospect thereunder shall continue, posted or hung up in a conspicuous place, in plain, legible characters, in the principal office or place of business of such person or company in the county in which said lands are situated, or in a county contiguous thereto, and shall deliver to any person mining or prospecting, or about to mine or prospect on said lands, and requesting it, a printed copy of such statement. All persons diggging or mining on said lands, after the posting up of such statement, shall be deemed to have agreed to and accepted the terms thereof, and shall, together with such owner or lessee. be bound thereby, and upon failure or refusal to comply with the terms, conditions and requirements of such statement, he or they shall forfeit all right thereunder, and the owner or lessee, as aforesaid, of such lands, may re-enter thereon and take possession of the same; nor shall the receipt of any ore or mineral by any such owner or lessee, after any such forfeiture has been incurred, be deemed or taken as a waiver of such forfeiture. (R. S. 1879, § 6441—*a*.)

SEC. 7035. *Forfeiture.*—Whenever any such owner or lessee of real estate shall permit any person or persons, other than their servants, agents or employes, to enter and dig for lead ore or other minerals on such real estate, with his consent, but without such owner or lessee complying with the provisions of section 7034, and such person or persons having so entered upon said lands by the permission or consent of such owner or lessee as aforesaid, and having in good faith dug or opened any shaft, mine, quarry, prospect or deposit of mineral, or extended or opened from any shaft or mine any room, drift, entry or other excavation, he or they shall have the exclusive right as against such owner or lessee giving such permit or consent, and against any person claiming by, through or under such owner or lessee, to continue to work, mine and dig such shaft, mine, prospect or deposit of mineral so dug or opened by him or them as aforesaid, in said real estate, with a right of way over such lands for the purpose of such mining, for the term of three years from the date of the giving of such consent or permit: *Provided, however*, that if such person or persons, in each case so mining as aforesaid, shall fail or neglect to work or cause to be worked such shaft, mine, quarry, prospect or deposit of mineral for ten days, not including Sundays, in any one calendar month, after commencing said work, he or they shall forfeit all rights to work, mine or hold the same as against such owner or lessee, unless such failure or neglect was caused by unavoidable circumstances, or by the act of such owner or lessee or his agent, or unless such owner or lessee consent thereto: *Provided, further*, that such person or persons, so mining as aforesaid, shall pay to the owner or lessee of said lands giving such permit or consent the royalty for mining thereon, at least once every month, if demanded by such owner or lessee, by delivering the same to him at or near the mouth or opening of such mine, shaft or quarry, or at the nearest usual place of business of such owner or lessee, or at any other place that may be agreed upon by such miner and owner or lessee; which said royalty, unless otherwise agreed upon by them, shall be the same in kind and proportionate amount as is paid by others mining the same kind of ore or mineral on said lands to such owner or lessee, or the value of such royalty in cash; and if there be no other person mining on said lands on terms prescribed by such owner or lessee, than he or they shall pay to such owner or lessee the same rate and kind of royalty on lead ore or minerals taken out by him or them as is paid by miners on lands nearest thereto belonging to other persons, or the value of such royalty in cash. Such owner or lessee of any real estate shall have a lien on all minerals taken or dug therefrom for the royalty due thereon until the same is paid; and if any such person or persons so mining shall refuse or fail to pay such royalty to such owner or lessee, or his agent, when demanded as aforesaid, he or they shall thereby forfeit the right to work such mine, shaft, quarry, prospect or deposit of mineral, and the said owner or lessee may thereupon enter and take possession of the same. (R. S. 1879 § 6442)

SEC. 7036. *Tender of payment.*—Any such person or persons who, by the permission or consent of the owner or lessee of any real estate, and having the right

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(*a*) The statement in this section amounts to a license, revocable upon condition broken, and when forfeited proprietor may re-enter and take possession. 74 Mo. 173.

to mine thereon, and having entered and dug or mined thereon any lead ore or other mineral, shall have the right to the exclusive possession of such ore or mineral, except the royalty thereon, which shall be paid as hereinbefore provided, until he or they shall be paid or tendered by such owner or lessee of such real estate the then highest market price in cash paid by such owner or lessee for the same kind of ore or mineral dug or mined on said lands, and if no other such ores or minerals are at the time being dug or mined on said lands and sold to such owner or lessee, then the highest price paid for such ore or mineral dug on lands nearest thereto shall be paid or tendered by such owner or lessee; in such case, and upon such payment or tender, the absolute right to the possession of such lead ore or other minerals so dug out and mined under the provisions of the next preceding section, and for which such payment or tender shall have been made, shall vest in such owner or lessee. (R. S. 1879, § 6443.)

SEC. 7037. *Notice to owner or lessee.*—If any person or persons having dug or mined lead or other mineral, and having the same in his or their possession, and having offered to deliver such mineral according to contract, or paid or tendered the royalty, if any, due thereon, or the value of such royalty in cash, to such owner or lessee of said real estate, or to his agent, shall serve or cause to be served a notice in writing upon such owner or lessee or his agent, by delivering to him a copy thereof, or by leaving a copy thereof at the usual place of abode of such owner, lessee or agent, with some member of the family over the age of fifteen years, stating in such notice the amount of lead ore or other mineral he or they have ready for delivery, and requiring such owner, lessee or agent to receive and pay for the same, the said owner or lessee shall, within five days after the service of such notice, receive and pay for such lead ore or other mineral which the said person or persons digging or mining the same may deliver to him, not exceeding the amount named in the notice; and in such case, if such owner or lessee fail or refuse within the time aforesaid to pay for such lead ore or mineral delivered or offered to be delivered to him as aforesaid at the said price, then in that event, the said person or persons who dug and mined the same shall thereupon acquire an absolute title to such lead ore or mineral, and may thereupon dispose of the same to any person or in any manner he or they may choose. (R. S. 1879, § 6444.)

SEC. 7038. *Sale of ore.*—All lead ore or other mineral dug or mined in or upon the lands of any person in this state, shall be deemed and held to be the absolute property of the owner or lessee of such lands, except in cases it is modified, changed or transferred by express contract; and any person who shall unlawfully sell or convert to his own use or remove or dispose of or in any manner make away with or conceal any such ore or mineral, so as to deprive the owner thereof of the same, shall be deemed guilty of grand or petit larceny, according to the value of such ore or mineral. (R. S. 1879, § 6445.)

SEC. 7039. *Injunction or restraining orders—notice of application to dissolve.*—No injunction or restraining order shall be granted by any court or by any judge thereof to enjoin or restrain the working of any mine or mines, or in any manner to interfere with the same, except upon notice first being given to the person working or operating said mine or mines, and sought to be enjoined or restrained, which notice shall be served by delivering to such person a copy thereof, or by leaving a copy thereof at his usual place of abode with a member of the family over the age of fifteen years, at least five days before the day set for the hearing of the application for the injunction; and the court or judge granting such injunction or restraining order shall have the power, upon good cause being shown, to dissolve, vacate or modify any such injunction or restraining order at any time after the same shall have been granted, whether in [term] time or vacation: *Provided*, that the party applying to such court or judge to dissolve, vacate or modify any such injunction or restraining order shall give due notice to the opposite party of such intended application. (R. S. 1879, § 6446.)

SEC. 7040. *Affidavit of course of drift and order to be made.*—When any owner, tenant or sub-tenant of a lot or lots or tract of land shall file with any justice of the peace within the county in which said lot or lots or tract of land may be situated his or her affidavit, or the affidavit of any other creditable person for them, stating that from knoweldge, information or belief, the party or parties owning, controlling or working the adjoining lot or lots or tract of land, and upon which said party or parties are sinking shafts, mining, excavating and running drifts, and that said drifts in which said parties are digging, mining and excavating mineral ore or veins of coal extend beyond the lines and boundaries of said lot or lots or tract of land, owned, controlled or worked by them, and have entered in and upon the premises of the party or parties making said affidavit, or for whom said affidavit is made, the justice of the peace, after first being tendered his lawful fees, shall issue his written order and deliver or cause the same to be delivered to the county surveyor or his deputy, commanding him, after his reasonable fees have been tendered, to proceed without delay to survey said drift by entering any and all shafts upon said lot or lots or tract of land that he (the surveyor) may see fit, for the purpose of ascertaining the course and distance of said drift or drifts, and to locate the same upon the surface. (R. S. 1879. § 6447.)

SEC. 7041. *Order to be read.*—The surveyor shall, before entering upon said duty, read said order to the party or parties owning, controlling or working any shaft or shafts on said lot or lots or tract of land. (R. S. 1879, § 6448)

SEC. 7042. *Refusal to obey order a misdemeanor.*—If said party or parties owning, controlling or working said shaft or shafts on said lot or lots or tract of land shall refuse, hinder or prevent said county surveyor or his deputy and his assistant from entering said shaft or shafts or drifts, to make the survey so ordered by the justice of the peace, and every person so offending shall, on conviction, be adjudged guilty of a misdemeanor, and punished by imprisonment in the county jail for a term of not exceeding one year or by fine not exceeding three hundred dollars, or by both said fine and imprisonment. (R. S 1879, § 6440.)

SEC. 7043. *Owner or lessee to drain mine, etc.*—When any person owning any real estate in this state, or any person or persons having a leasehold therein for the purpose of mining for lead or zinc ore thereon by lease from such owner, shall open such real estate for mining purposes, and shall permit any person or persons other than their agents, servants or employes to enter and dig or mine for lead or zinc ores thereon, and shall make any rule or contract whereby any pump-rent or royalty is reserved unto said land owner or lessee for the drainage of the land so mined, and shall fail or refuse to drain any such land or mining lot to the full depth to which the laborers are working or seeking to work, but prevented by water, then and in such event, such owner or lessee thereof shall not be entitled to collect or retain any pump-rent or royalty so reserved as aforesaid for any ores taken from said mine or lot, below the depth of the water-level in said mine or lot, so long as said owner or lessee shall fail or refuse to drain said mine, nor shall such land owner or lessee be entitled to forfeit any right to hold and mine said lot so long as work is prevented therein by reason of water accumulated therein, on account of any failure to drain said mine by such land owner or lessee, any rule, contract or agreement to the contrary notwithstanding. (New section.)

NAME OF MINE OR OWNER, OPERATOR, POSTOFFICE ADDRESS, AND LOCATION OF MINE.

FRANKLIN COUNTY.

Name of mine or owner.	Operator.	Postoffice address.	Mine located at or near
Bartle, J. H.	J. H. Bartle	St. Clair	St. Clair

GREENE COUNTY.

Name of mine or owner.	Operator.	Postoffice address.	Mine located at or near
Bowyer mine	R. F. Bowyer	Springfield	Springfield
Suffock Lead & Zinc Co	W. B. Farrer, manager	Mumford	"

JASPER COUNTY.

Name of mine or owner.	Operator.	Postoffice address.	Mine located at or near
American Mining Co.	C. E. Beach, secretary	Kansas City	Sherwood
A. B. P. Mining Co.	F. L. Yale, manager	Joplin	Joplin
Alba Mining Co.	Geo. Dennison, president	Alba	Alba
Blende Mining Co	W. B. Jeffrey	Joplin	Joplin
Becky Scharp Mining Co.	A. F. Donnau	"	"
Beckwith-Hall Mining Co.	Byron A. Ash	Carthage	"
Cave Springs Mining Co	W. E. Brinkerhoff, president	Joplin	"
Center Creek Mining Co.	W. C. Stewart, treasurer	Webb City	Webb City
Chatham Mining Co.	Jas. Smith, vice-president	"	"
Clover Leaf Mining Co.	E. M. Murray	Joplin	Joplin
Cottonwood Mining Co.	C. W. Guengerich	"	"
Daugherty & Davy.	W. A. Daugherty, secretary	Carterville	Carterville
Daugherty, Davy & Daugherty	" " "	"	"
Davey, Tower & Co.	Paul N. Davy, "	"	"
Denwig Mining Co.	J. A. Hardy, superintendent	Webb City	Webb City
Eleventh Hour Mining Co.	J. S. Thombs, "	"	Carterville
Edgar mine	Geo. W. Warns, agent	Carterville	"
Germania Mining Co.	Guy S. Farwell, superintendent	Joplin	Joplin

Granby M. & S. Co.	Jno. P. Neville, president	St. Louis	Joplin and Oronogo
Ground & Erwin	Ground & Erwin	Carthage	Webb City
Hardin Mining Co	M. H Hardin	Carterville	“
Harrison & James	Wm. Leekie (owner)	Joplin	Joplin
Hatfield & Lawrence	F. L. Yale, superintendent	“	“
Homestead Z. & L. Co	Geo. W. Warns, agent	Carterville	Carterville
Herold Mining Co	Roland Quintin, secretary	St Louis	“
Ihlsing mine	A. O. Ihlsing	Carthage	Carthage
Indiana & Missouri Mining Co	J. C. Dingle, superintendent	Joplin	Joplin
Jacob Bros	C. O Frye, “	“	“
Lewis mine	J. F. Lewis	Webb City	Webb City
Lichliter & Lear	N. B. Lichliter	Joplin	Joplin
Mahaska Mining Co	W. B. Jeffrey	“	Blendeville
Margerum Mining Co	Jno. Dermott, secretary	Webb City	Oronogo
Moonshine Mining Co	W. S Paul, “	Joplin	Joplin
Moffet & Watkins	Moffet & Watkins	“	“
Mound City Mining Co	Louis Helm, manager	Webb City	Carterville
McCorkle Hill Mining Co	C. S. Hepburn, superintendent	“	Webb City
O'Keefe mine	J. B. Guinne, superintendent	Joplin	Joplin
Perry mine	E. J. Tutty, “	“	Carterville
Rex Mining Co	E. D. Porter, president	“	Joplin
Richland Mining Co	J. M. Waugh, superintendent	Webb City	Carterville
Reed Mining Co	C. W. Reed	Joplin	Joplin
Roach, Jas & Co	Jas. Roach	“	“
Royal Blue Mining Co	W. C. Hering, superintendent	Webb City	Oronogo
Scotia Mining Co	H. H. Gregg	Joplin	Joplin
South Joplin Lead & Zinc Co	M. M. Hinton, superintendent	“	“
Swartz mine	P. L. Swartz	“	“
Sixteen to One Mining Co	T. J. Shelton, superintendent	Webb City	Webb City
The Empire Zinc Co	W. C. Witherall, manager	Joplin	Joplin
The Get There Mining Co	Jas. O'Neil, “	Webb City	Carterville
Taylor, Jno H., land	J. B. Glover, agent	Joplin	Joplin
Taylor L. & M. Co	“ “	“	“
Tenderfoot mine	Fred Hills	Webb City	Carterville
Tower, Davey & Co	P. M. Davy, manager	Carterville	“
Troupe Mining Co	S. H. Cobb, “	Webb City	“
Victor Mining Co	Thos. R. Cobb, secretary	“	“
West Joplin Mining Co	D. L. Brewster, vice-president	Jolpin	Joplin
Western Zinc Co	Daniel Dwyer, manager	“	“
Wright Mining Co	Frank L. Yale, “	“	“

NAME OF MINE, LOCATION, ETC.—Continued.

LAWRENCE COUNTY.

Name of mine or owner.	Operator.	Postoffice address.	Mine located at or near
Berry, Franklin	B. A. Berry, superintendent	Aurora	Aurora
Blackland Mining Co	Jacob Thielen, "	"	"
Brinkerhoff Zinc Co	F. H. Brinkerhoff, president	"	"
Campbell & Co	Paul Schmook, superintendent	"	"
Cleveland & Aurora M. & L. Co	C. F. Johnson, "	"	"
Dayton Mining Co	C. M. Dayton, "	"	"
Decatur Lead & Zinc Co	Geo. Van Riper, "	"	"
Elliot mine	S. G. Elliott, "	"	"
Hallenbeck, E. & Co.	W. G. Craig, Jr., "	Forest Home	Forest Home
Kentucky Mining Co	Geo. Van Riper, "	Aurora	Aurora
Leonard, Newman & Falk	Jacob Philen, "	"	"
Liles land	T. J. Liles, "	"	"
Mt. Vernon Mining Co	J. B. Davis, "	Mt. Vernon	Mt. Vernon
Rinker Lead & Zinc Co	S. H. Miner, "	Aurora	Aurora
Rinker land	Geo. W. Rinker, "	"	"
Pfau land	W. M. Johnson, "	"	"
Schmook land	Paul Schmook, "	"	"
Terre Haute Lead & Zinc Co	" "	"	"
Union Lead & Zinc Co	L. W. Hubbell, "	"	"

MADISON COUNTY.

Mine La Motte	J. D. Sanders, superintendent	Mine La Motte	Fredericktown

NEWTON COUNTY.

Granby Mining & S. Co.	John P. Neville, president.	St. Louis	Granby
Gobler mine	C. Gross, superintendent	Wentworth	Wentworth
Little Nugget Mining Co.	Geo. A. Purdy, "	"	"
Saginaw Lead & Zinc Co.	J. Reinmiller, "	Saginaw	Saginaw
Spring City Mining Co	J. W. Allen, "	Spring City	Spring City
Roaring Springs Lead & Zinc Co.	D. C. Hoover, "	Joplin	Gregg.

WASHINGTON COUNTY.

Cyclone mine		Richwoods	Richwoods
Long, James	James Long	Potosi	Potosi
Long, William	Wm Long	"	"
McArthur. A. P	Hugh McGregor	"	"
Palmer Lead Co	T. F. Blount, superintendent	Palmer	Palmer.
Shibboleth Lead Co	J. B. Lathey, "	Cadet	Cadet.
Union Mining & Smelting Co	Alex. Harrison, "	Old Mines	Old Mines.
White, Mrs. J. L		"	"
Higginbotham mines	Z. F. Higginbotham	Fertile	Fertile

WRIGHT COUNTY.

Dodson Lead & Zinc Co	G. J. Roote, superintendent	Mansfield	Mansfield

ST. FRANCOIS COUNTY.

Central Lead Co	Arthur Thatcher, superintendent	Elvins	Flat River
Desloge Consolidated Lead Co	J. M. Desloge, "	Desloge	Deslodge
Doe Run Lead Co.	F. P. Gravis, "	Doe Run	Doe Run
Leadington Lead Co	S. P. Reynolds, "	Leadington	Leadington
St. Joseph Lead Co	C. B. Parsons, "	Bonne Terre	Bonne Terre
The Flat River Lead Co.	Wm. R. Taylor, "	Farmington	Flat River

made by any employe, issue to such employe a due-bill for the amount due him up to the day of the demand, which due-bill shall be negotiable, whatever the form thereof shall be, and shall be redeemed by such operator in cash or its equivalent, at the option of the holder, on any pay-day, if the same shall be presented for redemption by any holder thereof; and any such operator failing or refusing to pay his employes, or to issue to them his due-bills as in this section provided, shall become immediately liable to any such employe in double the sum due such employe at the time of such failure or refusal, to be recovered by civil action in the name of such employe in any court of competent jurisdiction of the state. And no employe within the meaning of this article shall be deemed to have waived any right accruing to him under this section by any contract he may make contrary to the provisions hereof. (New section.)

SEC. 7060. *Refusal to redeem orders—penalty.*—Any officer or agent of any corporation, or any person, firm or company engaged in the business of manufacturing or mining in this state, who by themselves or agent shall issue or circulate in payment for wages of labor any order, check, memorandum, token or evidence of indebtedness, payable in whole or in part otherwise than in lawful money of the United States, without being negotiable and payable at the option of the holder in goods, wares, merchandise, supplies or lawful money of the United States, as required by section 7058 of this article, or who shall fail to redeem the same when presented for payment within thirty days from date or delivery thereof, by said company or its agents at his or their office or place of business, in lawful money of the United States, or who shall compel or attempt to coerce any employe of any such corporation, person, firm or company to purchase goods, wares, merchandise or supplies from any particular person, firm or corporation, shall be guilty of a misdemeanor, and on conviction thereof shall be fined not less than ten nor more than five hundred dollars for each and every such offense. (Laws 1885, p. 84.)

ARTICLE II.

SAFETY AND INSPECTION OF MINES.

SECTION
7061. Maps of mines to be prepared, etc.
7062. Inspector to make maps if owner fails, etc.
7063. Escapement shaft, when and how constructed, etc.
7064. Ventilation and use of explosives.
7065. Bore-holes.
7066. Signaling—hoisting—certain miners not to work, etc.
7067. Regulations for hoisting.
7068. Boilers—fencing entrances—signals, etc.

SECTION
7069. Accidents—duty and power of inspector, etc.
7070. Fines, how recovered
7071. Governor to appoint inspector, etc.
7072. Duties of inspector—reports.
7073. Inspector may enter mines at any time, etc.
7074. In case of injury or death, right of action.
7075. Rules of working mines—penalty.
7076. Prop-timbers.
7077. Strong-box for explosives.

SEC. 7061. *Maps of mine to be prepared, etc.*—The owner, agent or operator of each and every mine in this state, employing ten or more men, shall make or cause to be made, at the discretion of the inspector or other person acting in that capacity, an accurate map or plan of the workings of such mine and each and every vein thereof, showing the general inclination of the strata, together with any material deflections in the said workings and the boundary lines of said mine, and deposit a true copy of said map or plan with the clerk of the county court of each county wherein may be located the said mine; which said map or plan shall be so filed or deposited within three months after the time when this article shall take effect, and a copy of such map or plan shall also be kept for inspection at the office of the said mine; and during the month of January of each and every year after this article shall have taken effect, the said owner, agent or operator shall furnish the inspector and the clerk of the county court as aforesaid with a statement, and a further map or plan of the progress of the workings of such mine, continued from the last report to the end of the month of December next preceding, and the inspector shall correct his map or plan of said workings in accordance with the statement and map or plan thus furnished; and when any mine is worked out or abandoned, that fact shall be reported to the inspector, and the map or plan of such mine in the office of the clerk of the county court shall be carefully corrected and verified. (Laws 1887, p. 219)

Sec. 7062. *Inspector to make map if owner fails—cost.*—Whenever the owner, agent or operator of any mine shall neglect, fail or refuse to furnish the said inspector and clerk as aforesaid with a statement, the map or plan or addition thereto, as provided in the first section of this article, at the times and in the manner therein provided, the said inspector is hereby authorized to cause an accurate map or plan of the workings of such mine to be made at the expense of the said owner, agent or operator, and the cost thereof may be recovered by law from said owner, agent or operator, in the same manner as other debts, by suit in the name of the inspector and for his use. (Laws 1887, p. 219.)

Sec. 7063. *Escapement shafts, when and how constructed, etc.*—In all coal mines that are now or have been in operation prior to the first day of January, 1887, and which are worked by or through a shaft, slope or drift, and in which more than ten miners are employed in each twenty-four hours, if there is not already an escapement shaft to each and every said mine, or communication between each and every mine and some other contiguous mine, then there shall be an escapement shaft or other communication, such as shall be approved by the mine inspector, making at least two distinct means of ingress and egress for all persons employed or permitted to work in such mine. Such escapement shaft or other communication with a contiguous mine aforesaid shall be constructed in connection with every vein or stratum of coal worked in such mine, and the time to be allowed for such construction shall be one year when such mine is under one hundred feet in depth, two years when such mine is over one hundred feet and under three hundred feet, and three years when it is over three hundred feet and under four hundred feet, and four years when it is over four hundred feet in depth, and five years for all mines over five hundred feet, from the time this article goes into effect; and in all cases where the working face of one mine has been driven up to or into the workings of another mine, the respective owners of such mine, while operating the same, shall keep open a roadway at least two and one-half feet high and four feet wide, thereby forming a communication as contemplated in this article, and for a failure to do so shall be subject to the penalty provided for in section 7069 of this article, for each and every day such roadway is unnecessarily closed. Each and every such escapement shaft shall be separated from the main shaft by such extent of natural strata as shall secure safety to the men employed in such mines—such distance to be left to the discretion and judgment of the mine inspector or person acting in that capacity; and in all coal mines that shall go into operation for the first time after the first day of January, 1888, such an escapement or other communication with a contiguous mine, as aforesaid, shall be constructed within one year after such mine shall have been put into operation. And it shall not be lawful for the owner, agent or operator of any such mine as aforesaid to employ any person to work therein, or permit any person to go therein for the purpose of working, except such persons as may be necessary to construct such an escapement shaft, unless the requirements of this section shall have first been complied with; and the term "owner" used in this article shall mean the immediate proprietor, lessee or occupant of any mine, or any part thereof, and the term "agent" shall mean any person having, on behalf of the owner, the care or management of any mine, or any part thereof: *Provided*, nothing in this section shall be construed to extend the time allowed by law for constructing escapement shaft. (Laws 1887, p. 219, amended.)

SEC. 7064. *Ventilation and use of explosives*—The owner, agent or operator of every coal mine, whether operated by shaft, slope or drift, shall provide and maintain for every such mine a good and sufficient amount of ventilation for such men and animals as may be employed therein, the amount of air in circulation to be in no case less than one hundred cubic feet for each man, and six hundred cubic feet for each animal, per minute, measured at the foot of the downcast, and the same to be increased at the discretion of the inspector according to the character and extent of the workings, or to the amount of powder used in blasting; and said volume of air shall be forced and circulated to the face of every working place throughout the mine, so that such mine shall be free from standing powder-smoke and gases of every kind. All doors set on main entries for the purpose of conducting the ventilation shall be so constructed and hung as to close of themselves when open, and shall be made sufficiently tight to effectually obstruct the air-currents. In all mines employing fifty or more men, a boy or trapper shall be kept in attendance upon such doors, to see that they are kept securely closed, and the air-currents properly controlled. Whenever the inspector shall find men working without sufficient air, or under any unsafe conditions, he shall first give the operator a reasonable notice to rectify the same, and upon his refusal to do so, may himself order them out until said portions of said mine shall be put in proper condition. The ventilation required by this section may be produced by any suitable appliances, but in case a furnace shall be used for ventilaling purposes, it shall be built in such a manner as to prevent the communication of fire to any part of the works, by lining the upcast with incombustible material for a sufficient distance up from said furnace.

SEC. 7064*a*. All mines generating gas in which men are employed shall be examined every morning by a practical and duly authorized agent of the proprietor, to determine whether there are any dangerous accumulations of gas, or lack of proper ventilation, or obstructions to roadways, or any other dangerous conditions; and no person shall be allowed to enter the mine until the examiner shall have reported all of the conditions safe for beginning work. Such examiner shall make a daily record of the condition of the mine, in a book kept for that purpose, which shall be open at all times to the examination of the inspector. The currents of air in mines shall be so split as to give a separate current to at least every fifty men at work, and the mine inspector shall have discretion to order a separate current for a smaller number of men, if special conditions render it necessary.

SEC. 7064*b*. It shall be unlawful for any agent or operator of a coal mine to employ persons underground whose duties may involve contact with inflamable gases, or the handling of explosives, who have not had experience in such duties, unless all such employes are placed under the immediate charge and control of some competent and experienced miner, so as to secure the safety of other persons employed in the same mine.

SEC. 7064*c.* It shall be unlawful for coal miners in any mine to charge a blasting hole with loose powder, or otherwise than with a properly constructed cartridge; and in dry and dusty mines it shall be unlawful to load cartridges in the mines except with a powder can constructed for the purpose.

SEC. 2064*d.* The bottom of every shaft shall be supplied with a traveling way, to enable men to pass from one side of the shaft to the other, and without passing under or over the cages. All sumps shall be securely planked over so as to prevent accidents to men.

SEC. 7064*e.* Every owner, agent or operator of any coal mine in this State, employing five or more persons, violating any of the provisions of this act, shall be deemed guilty of a misdemeanor, and on conviction shall be fined for each offense not less than fifty nor more than two hundred dollars, or by imprisonment in the county jail not less than three nor more than twelve months, or by both such fine and imprisonment. (Approved, April 9, 1895.)

SEC. 7065. *Bore holes.*—The owner, agent or operator shall provide that bore-holes shall be kept twenty feet in advance of the face of each and every working place, and, if necessary, on both sides, when driving toward an abandoned mine and part of a mine suspected to contain inflammable gases or to be inundated with water. (Laws 1887, p. 220.)

SEC. 7066. *Signaling—hoisting—certain minors not to work, etc.*—The owner, agent or operator of every mine operated by shaft shall provide suitable means of signaling between the bottom and the top thereof, and shall also provide safe means of hoisting and lowering persons in a cage covered with boiler iron, so as to keep safe, as far as possible, persons descending into and ascending out of said shaft; and such cage shall be furnished with guides to conduct it on slides through such shaft, with a sufficient brake on every drum to prevent accident in case of the giving out or breaking of machinery; and such cage shall be furnished with spring catches, intended and provided, as far as possible, to prevent the consequences of cable breaking or the loosening or disconnecting of the machinery; and no props or rails shall be lowered in a cage while men are descending into or ascending out of said mine: *Provided*, that the provision of this section in relation to covering cages with boiler iron shall not apply to coal mines less than one hundred feet in depth, where the coal is raised by horse-power. No male person under the age of twelve years, or female of any age, shall be permitted to enter any mine to work therein; nor shall any boy under the age of fourteen years, unless he can read or write, be allowed to work in any mine. Any party or person neglecting or refusing to perform the duties required to be performed by the provisions of this article shall be deemed guilty of a misdeneanor, and punished by a fine in the discretion of the court trying the same, subject, however, to the limitation as provided by section 7069 of this article. (Laws, 1887, p. 221, amended.)

SEC. 7067. *Regulations for hoisting.*—No owner, agent or operator of any mine operated by shaft or slope shall place in charge of any engine whereby men are lowered into or hoisted out of the mines, any but experienced, competent and sober person, not under eighteen years of age; and no person shall be permitted to ride upon a loaded cage or wagon used for hoisting purposes in any shaft or slope, and in no case shall more than twelve persons ride on any cage or car at one time, nor shall any coal be hoisted out of any mine while persons are descending into such mine; and the number of persons to ascend out of or descend into any mine on one cage shall be determined by the inspector; the maximum number so fixed shall not be less than four nor more than twelve; nor shall be lowered or hoisted more rapidly than five hundred feet to the minute. (Laws 1887, p. 221, amended.)

Sec. 7068. *Boilers—fencing entrances—signals, etc* —All boilers used in generating steam in and about coal mines shall be kept in good order, and the owner, agent or operator, as aforesaid, shall have said boiler examined and inspected by hydrostatic pressure and warm water, by a competent boiler-maker or other qualified person, as often as once every six months, and the result of every such examination shall be certified in writing to the mine inspector; and the top of each and every shaft, and the entrance of each and every immediate working vein shall be securely fenced by gates properly covering and protecting such shaft and entrance thereto; and the entrance to every abandoned slope, air or other shaft, shall be securely fenced off; and every steam boiler shall be provided with a proper steam gauge, water gauge and safety valve, and all under-ground self-acting or engine planes or gangways on which coal cars are drawn and persons travel, shall be provided with some proper means of signaling between the stepping places and the end of said planes or gangways, and sufficient places of refuge at the sides of such planes or gangways shall be provided at intervals of not more than twenty feet apart. (Laws 1887, p. 221, amended.)

Sec. 7069. *Accidents—duty and power of inspector, etc.*—Whenever loss of life or serious personal injury shall occur by reason of any explosion or of any accident whatsoever, in or about any mine, it shall be the duty of the person having charge of such mine to report the facts thereof without delay to the state mine inspector, and if any person is killed thereby, to notify the coroner of the county also, or in his absence and inability to act, any justice of the peace of said county; and the said inspector shall, if he deem it necessary from the facts reported, immediately go to the scene of said accident and make suggestions and render such assistance as he may deem necessary for the safety of the men; and the inspector shall investigate and ascertain the cause of such explosion or accident and make a report thereof, which he shall preserve with the other records of his office; and to enable him to make such investigation, he shall have the power to take depositions, compel the attendance of witnesses and administer oaths or affirmations to them; and the cost of such investigation shall be paid by the county court of the county in which such accident shall have occurred, in the same manner as costs of coroners' inquests are now paid. And a failure on the part of a person having charge of any mine in which any such accident may have occurred to give notice to the inspector or coroner, as provided for in this section, shall subject such a person to a fine of not less than one hundred nor more than three hundred dollars, to be recovered of him in the name of the state of Missouri, before any justice of the peace of such county wherein the mine is situate and the accident occurred; and such one, when collected, shall be paid into the county treasury for the use and benefit of said county. (Laws 1887, p. 222.)

Sec. 7070. *Fines, how recovered.*—In all cases in which punishment is not provided for by fine under this article, for a breach of any of its provisions, the fine for the first offense shall not be less than fifty nor more than two hundred dollars, and for the second offense not less than two hundred nor more than five hundred dollars, to be recovered in any court of the state having competent jurisdiction. (Laws 1887, p. 222.)

Sec. 7071. *Governor to appoint inspector, etc.*—The governor shall appoint an inspector of mines, who shall serve for two years, and shall have a practical mining experience, but not be interested in any mine, and shall receive a salary of $1500 per annum and his actual traveling expenses. He shall have his office in the office of the commissioner of labor statistics, and when not inspecting mines, act as a clerk in said office, giving his whole time to the state. (Laws 1887, p. 222, amended.)

SEC. 7072. *Duties of inspector—reports.*—The inspector provided for in this article shall see that every necessary precaution is taken to secure the health and safety of the workmen employed in any of the mines in this state, that the provisions and requirements provided for in this article be faithfully observed and obeyed, and the penalties of the law enforced. He shall also collect and tabulate in his report, to be made to the bureau of labor statistics on the 15th day of October of each year, the extent of workable mining lands in this state, by counties; also the manner of mining, whether by shaft, slope or drift, the number of mines in operation, the number of men employed therein, the amount of capital invested, and the amount of mineral, coal, etc., produced. (Laws 1887, p. 222.)

SEC. 7073. *Inspector may enter mines at any time, etc.*—It shall be lawful for the inspector provided for in this article to enter, examine and inspect any and all mines and machinery belonging thereto, at all reasonable times, by day or by night, but so as not to obstruct or hinder the necessary workings of such mine, and the owner, agent or operator of every such mine is hereby required to furnish all necessary facilities for such entering, examination and inspection; and if the said owner, agent or operator aforesaid shall refuse to permit such inspection, or to furnish the necessary facilities for such entry, examination and inspection, the inspector shall file his affidavit setting forth such refusal before the judge of the circuit court in said county in which said mine is situated, either during the term of the court or during vacation, and obtain an order on such owner, agent or operator so refusing as aforesaid, commanding him to permit and furnish such facilities for the inspection of such mine, or to be adjudged to stand in contempt of court and punished accordingly; and if the said inspector shall, after examination of any mine and the works and machinery pertaining thereto, find the same to be worked contrary to the provisions of this article. or unsafe for the workmen therein employed, said inspector shall, through the circuit attorney of his county, or any attorney in case of his refusal to act, acting in the name and on behalf of the state, proceed against the owner, agent or operator of such mine, either separately or collectively, by injunction, without bond, after giving at least two days' notice to such owner, agent or operator; and said owner, agent or operator shall have the right to appear before the judge to whom application is made, who shall hear the same on affidavits and such other testimony as may be offered in support as well as in opposition thereto; and if sufficient cause appear, the court, or judge in vacation, by order, shall prohibit the further working of any such mine in which persons may be unsafely employed contrary to the provisions of this article, until the same shall have been made safe and the requirements of this article shall have been complied with; and the court shall award such costs in the matter of said injunction as may be just; but any such proceedings so commenced shall be without prejudice to any other remedy permitted by law for enforcing the provisions of this article. (Laws 1887, p. 223.)

SEC. 7074. *In case of injury or death, right of action.*—For any injury to persons or property occasioned by any willful violation of this article, or willful failure to comply with any of its provisions, a right of action shall accrue to the party injured for any direct damages sustained thereby; and in case of loss of life by reason of such willful violation or willful failure as aforesaid, a right of action shall accrue to the widow of the person so killed, his lineal heirs or adopted children, or to any person or persons who were, before such loss of life, dependent for support on the person or persons so killed, for a like recovery of damages sustained by reason of such loss of life or lives. (Laws 1887, p. 223.)

SEC. 7075. *Rules of working mines—penalty.*—Any miner, workman or other person who shall knowingly injure any water-guage, barometer, air-course or brattice, or shall obstruct or throw open any air-ways, or carry any lighted lamps or matches into places that are worked by the light of safety lamps, or shall handle or disturb any part of the machinery of the hoisting engine, or open a door to a mine and not have the same closed again, whereby danger is produced, either to the mine or those at work therein, or who shall enter into any part of the mine against caution, or who shall disobey any order given in pursuance of this article, or who shall do any willful act whereby the lives and health of persons working in the mine, or the security of the mine or miners or the machinery thereof is endangered, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be punished by fine or imprisonment, at the discretion of the court. (Laws 1887, p. 224.)

SEC. 7076. *Prop-timbers.*—The owner, agent or operator of any mine shall keep a sufficient supply of timber, when required to be used as props, so that the workmen may at all times be able to properly secure the said workings from caving in, and it shall be the duty of the owner, agent or operator to send down all such props when required. (Laws 1887, p. 224.)

SEC. 7077. *Strong-box for explosives.*—All owners, agents or operators of coal mines shall require of all miners or other persons employed in and about a mine, using gun and blasting powder or other explosive, to have and keep a strong-box in which all surplus gun or blasting powder or other explosives in the mine shall be kept, excepting so much as is necessary for immediate use. These boxes shall be kept locked, and not opened unless it be to put in or take out powder; nor must these strong (or powder) boxes be nearer than one hundred feet to the place of blasting. And in all dry and dusty coal mines discharging light carbonated hydrogen gas, or mines where the coal is blasted off of the solid, shot-firers must be employed to fire all shots after the employes and other persons have retired from the mine.

SEC. 7077*a*. Any agent, owner or operator of any coal mine in this state violating the provisions of the preceding section shall be deemed guilty of a misdemeanor, and for each offense on conviction shall be fined not less than fifty or more than two hundred dollars, or by imprisonment in the county jail not less than three nor more than twelve months, or by both such fine and imprisonment.

SEC. 7077*b*. There being now no law with a penalty for the violation of the provisions [of section] 7077, and as said law is necessary to protect the life of coal miners, creates an emergency within the meaning of the constitution; therefore, this act shall take effect and be in force from and after its passage. (Approved April 11, 1895.)

WAGES OF LABOR.

AN ACT to amend section 7059, of the Revised Statutes for the State of Missouri for 1889, concerning mines and mining.

Be it enacted by the General Assembly of the State of Missouri, as follows:

SECTION 1. That section 7059, of chapter 115, article 1, of the Revised Statutes of Missouri of 1889, be amended by striking out the word "thirty," between the words "every" and "days," in the third line of said section, and inserting in lieu thereof the word "fifteen;" so that said section, when amended, shall read as follows:

Sec. 7059. *Employes to be paid semi-monthly, etc.*—The employes of operators of mines mentioned in this article shall be regularly paid at least once in every fifteen days, and at no pay-day shall there be withheld [any] of the earnings of any employe. And such operators shall, whenever demand therefor shall be made by any employe, issue to such employe a due-bill for the amount due him up to the day of the demand, which due-bill shall be negotiable, whatever the form thereof shall be, and shall be redeemed by such operator in cash or its equivalent, at the option of the holder, on demand, if the same shall be presented for redemption by any holder thereof; and any such operator failing or refusing to pay his employes, or to issue to them his due-bills, as in this section provided, shall become immediately liable to any such employe in double the sum due such employe at the time of such failure or refusal, to be recovered by civil action, in the name of such employe, in any court of competent jurisdiction of the state. And no employe, within the meaning of this article, shall be deemed to have waived any right accruing to him under this section by any contract he may make contrary to the provisions hereof. (Approved April 20, 1891.)

INSPECTION.

AN ACT to amend section 7074, chapter 115, article 2, of the Revised Statutes of the State of Missouri, relating to the safety and inspection of mines.

Be it enacted by the General Assembly of the State of Missouri, as follows:

Section 1. That section 7074, chapter 115, article 2, of the Revised Statutes of the state of Missouri, be and the same is hereby amended by striking out the word "willful" wherever the same occurs in said section—namely, after the word "any," in line two, after the word "or," in line three, and after the words "such" and "or" in line five—so that said section, when amended, shall read as follows:

Section 7074. For any injury to persons or property occasioned by any violation of this article or failure to comply with any of its provisions, a right of action shall accrue to the party injured for any direct damages sustained thereby; and in case of loss of life by reason of such violation or failure as aforesaid, a right of action shall accrue to the widow of the person so killed, his lineal heirs or adopted children, or to any person or persons who were, before such loss of live, dependent for support on the person or persons so killed, for a like recovery of damages sustained by reason of such loss of life or lives: *Provided*, that all suits brought under this article shall be commenced within one year after any cause of action shall have accrued under this article, and not afterward; *and provided further*, that any person entitled to sue under this section for loss of life or lives may recover any sum not exceeding ten thousand dollars. (Approved April 23, 1891.)

AN ACT fixing a standard of quality for oils to be used for illumination purposes in coal mines, prohibiting the sale of impure oils for such purpose, and providing for the inspection of such oils, and penalties for the violation of this act.

Be it enacted by the General Assembly of the State of Missouri, as follows:

Section 1. Only a pure animal or vegetable oil, or other oil as free from smoke as a pure animal or vegetable oil, and not the product or by-product of rosin, and which shall, on inspection, comply with the following test, shall be used for illu inating purposes in the mines of this state. All such oil must be tested at 60 degrees Fahrenheit. The specific gravity of the oil must not exceed 24 degrees Tagliabue. The test of the oil must be made in a glass jar one and five-tenths inches in diameter by seven inches in depth. If the oil to be tested is below 45 degrees Fahrenheit in temperature, it must be heated until it reaches about 80 degrees Fahrenheit; and should the oil be above 45 degrees and below 60 degrees Fahrenheit, it must be raised to a temperature of about 70 degrees Fahrenheit, when, after being well shaken, it should be allowed to cool gradually to a temperature of 60 degrees Fahrenheit before finally being tested. In testing the gravity of the oil, the Tagliabue hydrometer must be, when possible, read from below, and the last line which appears under the surface of the oil shall be regarded as the true reading. In case the oil under test should be opaque or turbid, one-half of the capillary attraction shall be deemed and taken to be the true reading. Where the oil is tested under difficult circumstances, an allowance of one-half degree may be made for possible error in parallax, before condemning the oil for use in the mine. All oil sold to be used for illuminating purposes in the coal mines of this state shall be contained in barrels or packages, branded conspicuously with the name of the dealer, the specific gravity of the oil, and the date of shipment.

Sec. 2. Any person or persons, firm or corporation which ships any oil contained in any barrel or barrels, package or packages, which are not branded as prescribed in section 1, said oil to be used for illuminating purposes in coal or other mines; and any person or persons, firm or corporation which sells any oil other than that prescribed in section 1, to be used for illuminating purposes in coal mines; and any person or persons, firm or corporation having in charge the operation or running of any coal mine, which, in a mine under his or its charge, uses or permits the use of any oil other than that prescribed in section 1, and any miner or mine employe who uses, with a knowledge of its character, in any coal mine in this state, any other oil than that prescribed in section 1, shall be deemed guilty of a misdemeanor, and on conviction shall be fined for each offense not less than fifty nor more than two hundred dollars, or by imprisonment in the county jail not less than three nor more than twelve months, or by both such fine and imprisonment.

Sec. 3. It shall be the duty of the state coal mine inspector in person, or by some person designated by him, to inspect oils being used by miners to determine if the grade is of the standard described in section 1 of this act—said inspection to be made at the pleasure of the coal mine inspector, or a person designated by him. Should he find the grade of oil used below the grade fixed in this act, he shall notify the owner, agent or operator of the mine, and also notify the miners using the oil that the quality is inferior, and if change is not made as soon as practical, he shall notify the prosecuting attorney of the county in which the mine is located, giving him all the facts, and the prosecuting attorney shall forthwith proceed to enforce the provisions of this act. (Approved April 9, 1895.)

AN ACT defining how coal mines on the room and pillar plan shall be worked, and providing penalties for violations of the provisions of this act, with an emergency clause.

Be it enacted by the General Assembly of the State of Missouri, as follows:

Section 1. The owner, agent or operator of any coal mine in this state, employing five or more persons, if said mine is worked on the room and pillar plan, shall cause the work in such mine to be prosecuted in the following manner, and none other, to wit: Two entries must be driven parallel for the ingress and egress of the air, and cross-cuts must be made at intervals not to exceed fifty feet apart, and no rooms, entries or other openings shall be allowed to start inside of the cross-cut until the next one be made.

SEC. 2. Any owner, agent or operator in charge of any coal mine worked on the room and pillar plan failing to comply with the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than one hundred dollars nor more than one thousand dollars or by imprisonment in the county jail not less than six months nor more than one year, or by both such fine and imprisonment; and every day that the mine is operated contrary to the provisions of this act, after the owner, agent or operator in charge thereof shall have been convicted for a first offense under this act, shall be and constitute a separate and distinct subsequent offense, and shall be punished as such.

SEC. 3. The state coal mine inspector shall, after this act becomes a law, give notice, in writing, to the owner, agent or operator in charge of each coal mine in this state now being worked on the room and pillar plan, to conform the working of such mine to the requirements hereinbefore set out and prescribed; and such owner, agent or operator shall have thirty days in which to comply before being liable to the penalty provided herein.

SEC. 4. As many coal mines in this state, now being worked on the room and pillar plan, are imminently dangerous to the health and safety of the miners engaged therein, on account of the present methods under which such mines are constructed and worked; therefor, an emergency within the meaning of the constitution exists, and this act on that account shall take effect and be in force from and after its passage and approval. (Approved March 18, 1895.)

AN ACT to provide for the payment of wages of labor in the lawful money of the United States.

Be it enacted by the General Assembly of the State of Missouri, as follows:

SECTION 1. It shall not be lawful for any person, firm or corporation in this state to issue, pay out or circulate, for payment of the wages of labor, any order, note, check, memorandum, token, evidence of indebtedness, or other obligation, unless the same is negotiable and redeemable at its face value, in lawful money of the United States, by the person, firm or corporation issuing the same.

SEC. 2. All persons, firms or corporations issuing or circulating any such order, note, check, memorandum, token, evidence of indebtedness, or other obligation, shall be at all times during the business hours of the day prepared to redeem, and shall redeem, all such orders, notes, checks, memorandums, tokens, evidence of indebtedness, or other obligation, when presented at their place of business or office, at their face value, in good and lawful money of the United States, or in goods, at the option of the holder.

SEC. 3. Any person, firm or corporation, or the officer or officers of any corporation, who shall violate this act, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be fined in a sum not less than fifty (50) nor more than five hundred (500) dollars, or by imprisonment in the county jail, or by both such fine and imprisonment.

SEC. 4. All fines, exclusive of the expense of the court, collected under and by virtue of this act shall be immediately paid into the treasury of the school trustees or board of each county where such fines are collected: Provided, however, that nothing contained herein shall be so construed as to apply to any municipality, township, county or other subdivision of the state. (Approved April 8, 1895.)

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